

Times 100  
The entire population of the Galaxy lives 1000 days

1000

Age		M01			M02			M03			M04			M05			M06			M07			M08		
		Males		Females	Males		Females	Males		Females	Males		Females	Males		Females	Males		Females	Males		Females			
		Median	Percentile	Birth Range	Median	Percentile	Birth Range	Median	Percentile	Birth Range	Median	Percentile	Birth Range	Median	Percentile	Birth Range	Median	Percentile	Birth Range	Median	Percentile	Birth Range			
0-4	Reading Comprehension Total	51.00	10th	10-14	48.00	10th	1-10	47.00	10th	1-10	47.00	10th	1-10	46.00	10th	1-10	45.00	10th	1-10	44.00	10th	1-10			
5-9	Reading Comprehension Total	52.00	10th	10-14	49.00	10th	1-10	48.00	10th	1-10	47.00	10th	1-10	46.00	10th	1-10	45.00	10th	1-10	44.00	10th	1-10			
10-14	Reading Comprehension Total	53.00	10th	10-14	50.00	10th	1-10	49.00	10th	1-10	48.00	10th	1-10	47.00	10th	1-10	46.00	10th	1-10	45.00	10th	1-10			
15-19	Reading Comprehension Total	54.00	10th	10-14	51.00	10th	1-10	50.00	10th	1-10	49.00	10th	1-10	48.00	10th	1-10	47.00	10th	1-10	46.00	10th	1-10			
20-24	Reading Comprehension Total	55.00	10th	10-14	52.00	10th	1-10	51.00	10th	1-10	50.00	10th	1-10	49.00	10th	1-10	48.00	10th	1-10	47.00	10th	1-10			
25-29	Reading Comprehension Total	56.00	10th	10-14	53.00	10th	1-10	52.00	10th	1-10	51.00	10th	1-10	50.00	10th	1-10	49.00	10th	1-10	48.00	10th	1-10			
30-34	Reading Comprehension Total	57.00	10th	10-14	54.00	10th	1-10	53.00	10th	1-10	52.00	10th	1-10	51.00	10th	1-10	50.00	10th	1-10	49.00	10th	1-10			
35-39	Reading Comprehension Total	58.00	10th	10-14	55.00	10th	1-10	54.00	10th	1-10	53.00	10th	1-10	52.00	10th	1-10	51.00	10th	1-10	50.00	10th	1-10			
40-44	Reading Comprehension Total	59.00	10th	10-14	56.00	10th	1-10	55.00	10th	1-10	54.00	10th	1-10	53.00	10th	1-10	52.00	10th	1-10	51.00	10th	1-10			
45-49	Reading Comprehension Total	60.00	10th	10-14	57.00	10th	1-10	56.00	10th	1-10	55.00	10th	1-10	54.00	10th	1-10	53.00	10th	1-10	52.00	10th	1-10			
50-54	Reading Comprehension Total	61.00	10th	10-14	58.00	10th	1-10	57.00	10th	1-10	56.00	10th	1-10	55.00	10th	1-10	54.00	10th	1-10	53.00	10th	1-10			
55-59	Reading Comprehension Total	62.00	10th	10-14	59.00	10th	1-10	58.00	10th	1-10	57.00	10th	1-10	56.00	10th	1-10	55.00	10th	1-10	54.00	10th	1-10			
60-64	Reading Comprehension Total	63.00	10th	10-14	60.00	10th	1-10	59.00	10th	1-10	58.00	10th	1-10	57.00	10th	1-10	56.00	10th	1-10	55.00	10th	1-10			
65-69	Reading Comprehension Total	64.00	10th	10-14	61.00	10th	1-10	60.00	10th	1-10	59.00	10th	1-10	58.00	10th	1-10	57.00	10th	1-10	56.00	10th	1-10			
70-74	Reading Comprehension Total	65.00	10th	10-14	62.00	10th	1-10	61.00	10th	1-10	60.00	10th	1-10	59.00	10th	1-10	58.00	10th	1-10	57.00	10th	1-10			
75-79	Reading Comprehension Total	66.00	10th	10-14	63.00	10th	1-10	62.00	10th	1-10	61.00	10th	1-10	60.00	10th	1-10	59.00	10th	1-10	58.00	10th	1-10			
80-84	Reading Comprehension Total	67.00	10th	10-14	64.00	10th	1-10	63.00	10th	1-10	62.00	10th	1-10	61.00	10th	1-10	60.00	10th	1-10	59.00	10th	1-10			
85-89	Reading Comprehension Total	68.00	10th	10-14	65.00	10th	1-10	64.00	10th	1-10	63.00	10th	1-10	62.00	10th	1-10	61.00	10th	1-10	60.00	10th	1-10			
90-94	Reading Comprehension Total	69.00	10th	10-14	66.00	10th	1-10	65.00	10th	1-10	64.00	10th	1-10	63.00	10th	1-10	62.00	10th	1-10	61.00	10th	1-10			
95-99	Reading Comprehension Total	70.00	10th	10-14	67.00	10th	1-10	66.00	10th	1-10	65.00	10th	1-10	64.00	10th	1-10	63.00	10th	1-10	62.00	10th	1-10			
100+	Reading Comprehension Total	71.00	10th	10-14	68.00	10th	1-10	67.00	10th	1-10	66.00	10th	1-10	65.00	10th	1-10	64.00	10th	1-10	63.00	10th	1-10			

**FIG 10** Endometriosis and uterine cancer survival rates by female hormone therapy use.

# Introduction and Report

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## I

1.1. The purpose of this Chapter is both to set the scene for the very much more detailed chapters that follow it and to outline the conclusions which our analyses suggest. The Chapter itself does not at all points include full documentation or analysis; these are to be found in the studies that follow.

### Origins of the Regional Survey and Plan

1.2. This Report had its origins in a statement in paragraph 26 of the White Paper on Central Scotland.<sup>(1)</sup> That paragraph, which is concerned with growth areas, identified the Grangemouth/Falkirk area as a major growth area and went on to say: "where, subject to discussions with the local authorities, the assistance of the Universities of Glasgow and Edinburgh will be sought in the preparation of a comprehensive economic and physical expansion scheme designed to increase population in the area by about 50,000". The White Paper also recognized that this study would be concerned with a "new look for the older industrial communities" and that issues of rehabilitation took their place alongside those of growth and development. The discussions with the local authorities took place and the Universities of Glasgow and Edinburgh began work in October 1964. The study is administered by a Joint Planning Advisory Committee which includes in membership representatives of the County Councils of Stirling and West Lothian and the Large Burgh of Falkirk, all of which are planning authorities, and also representatives of the Small Burghs of Bo'ness, Denny and Dunipace and Grangemouth. The study was entrusted to consultants—Professors P. Johnson-Marshall and Sir Robert H. Matthew of the University of Edinburgh and Professor D. J. Robertson of the University of Glasgow. The work of the University of Edinburgh has been carried out by a team based on the Department of Architecture and the Planning Research Unit of the University, while the work at the University of Glasgow has been centred on the team whose names are presented as authors of the chapters that follow. The part of the study undertaken by the University of Glasgow has been based on the Department of Social and Economic Research. The agreed terms of reference to the consultants are as follows:

(1) To carry out a survey and prepare a scheme of development for the area defined in the White Paper "Central Scotland: A Programme for Development and Growth" (Cmd. 2188) as the Grangemouth Growth Area and adjoining districts; and for this purpose to consider and report on the economic, social and physical planning problems presently existing and likely to arise in the course of development of the area along the lines indicated in the White Paper.

(2) To present the scheme of development in the form of an advisory plan, covering both the physical planning aspects in terms of the Town and Country Planning (Scotland) Acts, 1947 to 1959, and the economic aspects, including proposals for capital investment and measures to stimulate economic growth.

(3) To present a report on the survey and the scheme of development (both of which will be published) to the Joint Planning Advisory Committee in 1966.

1.3. The consultants and most of the principal members of the teams from the two universities moved on to this study from a previous collaborative effort in preparing the Lothians Regional Survey and Plan.<sup>(2)</sup> This has ensured a continuity of thought and of partnership which has been of great value. As in the Lothians Report, the University of Glasgow's contribution to the Report is presented first, since the Glasgow team have been concerned to analyse the main variables which affect development in the area and therefore to set the main assumptions which should be followed through in its physical planning and development. The task of developing the physical implications has been the primary concern of the group from the University of Edinburgh. It is important to express at a very early stage of this Report the warm appreciation which all concerned in Glasgow have for this collaboration between the two universities and the two different groups of disciplines represented. It is also important to recognize the

<sup>(1)</sup> *Central Scotland: A Programme for Development and Growth*, Cmd. 2188, November, 1963, H.M.S.O.

<sup>(2)</sup> *Lothians Regional Survey and Plan*, H.M.S.O., Edinburgh, 1966. Volume One, "Economic and Social Aspects", 75s. net; and Volume Two, "Physical Planning Aspects", 75s. net.



assistance which the authors have had from local authorities and other public bodies and from many firms and individuals.

## II

1.4. Our studies for this volume have ranged widely. We have tried to examine many topics which may have a bearing on the matter and to do this, not merely within the context of the Area itself, but by looking at the experience of others. On the other hand, we have tried to concentrate our efforts on the most significant points of discussion, and these are to be found reflected in the chapters that follow. It is clearly necessary in studying any area first to discover the size of its population and the composition of that population with regard to age, sex, industrial and occupational structure. Then the distribution of the population within the area has to be examined. This population is already subject to forces of natural increase and migration and their working-out over the future has to be examined. Further, any policy designed to stimulate growth naturally implies changes in present trends in the population. These have to be assessed and stated as assumptions since they imply, for the most part, policy actions. Then their influence has to be traced in terms of effects on the availability of workers, on the numbers of school-children and other similar matters.

The next obvious question that arises is to look at the health of the economy of the Area in relation both to industry and to commerce. To do this it is necessary to examine the present position of employment in the Area and trends in it, so as, for example, to assess the likely development of particular industries. Then the prospects of employment growth have to be set out and the means by which such growth might be induced have to be discussed. In regional analysis one of the important issues is the extent to which any given injection of new employment will breed further employment in the region, or whether the purchasing power introduced by new developments is to a considerable extent lost to the region and results in increased activity elsewhere (the regional "multiplier" effect). In examining the employment situation, we have attempted to pay particular attention to service employment and commercial employment as well as industrial prospects. This has required, in particular, assessment of the prospects for central-area uses of land as well as the need for industrial sites. While a study of employment in the Area is in part based on the trends generated within it, it is clear that, in the context of growth area policy and regional policy in general in Britain, employment in the Area is conditioned by the decisions of the Government: it follows that we have been unable to forbear from commenting on the implications of present Government policy on regional development. We have attempted to indicate the volume of employment which might be expected to derive from the Area's industrial structure and the needs of its present and projected population,

and thus derive an indication of the need for special endeavours implying the strong support of effective Government policy.

The present fabric of the Area is related not only to the people and their jobs but to their housing, the availability of transport and all forms of social investment which exist both as services to the Area and, for the most part, as sources of employment. It is important also to remember that the building industry is directly affected by the scale of any growth which may take place in the Area. These and related matters are discussed in chapters dealing with transport and communications, with housing and with social services. In each case it has been necessary to look at the present position and the changes implicit in it, and then to assess the possible consequences of development. For example, the housing problems of the Area are both a matter of the adequacy of the present stock in relation to present population and the trends towards population growth and change inherent in it, and also a matter of the consequential implications for housing of further economic development and immigration. In the case of investment we have tried to indicate the arguments affecting the balance of advantage in meeting the demands on public capital which will arise.

In each of the topics of research and comment which have been mentioned up to now there are subsidiary issues as well as the main theme. For example, alongside a discussion of the main flows of transport and communications within the Area there is the very important issue of the Port of Grangemouth, which is related both to the transport of goods produced within the Area and to discussions of the Area's primary sources of employment. Additionally, while each of these topics has to be considered within its own frame of reference, it is also necessary to pull different proposals into line with each other. The proposals about employment and industrial sites, for example, have to be related to proposals for housing and, if this relationship does not result in a balance of the number of people for whom housing is provided and the numbers of workers for whom employment may be generated, the implications of commuting into or out of the Area have to be examined. Our work has therefore required a constant process of reconciliation and assimilation.

We have considered the implications of development for education and for health and welfare services in the light of the present provision of these services in the Area. While we have not attempted a comprehensive evaluation of the quality of social life and community in the Area at present, we have made some assessment of these, particularly in the context of recreational facilities. Whatever may be said in detail, it is apparent that any implementation of proposals for growth will mean rapid social changes and consequential changes in the facilities and the character of the social life of the Area. We have attempted to indicate some of the more desirable improvements in the provision of social facilities that will be required, concentrating specially on provisions which have land use implications.

Problems arising from the unstable nature of the terrain in many parts of the Area have required special attention. At some points the Area has been subject to extensive mining operations. At others the land is flat, but consists of mud deposited on a foundation of rock which may be many feet below the surface. Additionally, land might, with enterprise and if it were required, be reclaimed from the Forth. These problems are not unique in Central Scotland, nor in most parts of Britain where it is not particularly easy always to choose ideal building sites, nor are they unfamiliar in other parts of the world. They did, however, seem important enough in this context to be the subject of a special study, though this is a subject of such complexity that it deserves a fuller study than we have been able to attempt.

1.5. We have discussed the question of the date to which our proposals should refer. 1981 seems in some respects to have been accepted in the White Paper on Central Scotland as a date to which planning ought, at this juncture, to look. With the passage of time that date might now be amended to 1985 or 1986, but in the case of this Area we must envisage the process of development as occurring in phases. There is already a large population and a large amount of economic activity. Even though new effort were introduced, in the first number of years the prospects of the Area would be very much influenced or dominated by its present activities. Thereafter, perhaps in the second half of the period towards 1985/6, new effort might begin to take over and the character of the Area might reflect rather more of what is new than what is old. With the shortage of land in Central Scotland, it would be wrong to contemplate large development without attention to reserve sites for development contiguous to our proposals which might come into use in the latter part of the century or beyond. Our thinking has moved roughly in these three phases—the early period in which existing forces are dominant, the period of rapid change towards 1985/6, and the period of growth carried forward by the momentum of change into the next century. While dates are used from time to time, however, the precise dating is less important than the scale of thought and the sequence of events which is indicated. These matters are discussed at more length in VIII below.

### III

1.6. This study follows upon a study of the Lothians area<sup>(1)</sup> centring on the new town of Livingston. There are, of course, many differences between the two areas, the most notable being that this Area already has a large population and larger, well-developed existing communities. There are such communities in the survey area of the Lothians Regional Survey and Plan but, since the new town of Livingston

is at the heart of the development processes there, the detailed problems were of a somewhat different character. On the other hand, much of the analysis of the Lothians study has its place also in this study, and many of the conclusions on Government policy reached there are readily capable of being transposed into the present study. We have considered it important, in the interests of continuity of thought and clarity of exposition, not to attempt to produce a new formulation of issues which are very little different here, and have preferred simply to draw on our experience and conclusions in the Lothians study and refer to them freely in the present Report. Many of the chapters will be doing this. It would be valuable, however, at this point to state firmly some of the main features of the Lothians Regional Survey and Plan which we take to be entirely relevant to the present Report.

1. It was a continuing theme of the Lothians Report that the development of a growth area requires efficient and co-ordinated administrative attention, whatever else it may have. Development will need a co-ordinated effort from the responsible local administrators. But the point requires more than this, since an area chosen for especially rapid or, if the word may be used without critical implications, "unnatural" development, has to receive the special and continuing attention of the Government Departments concerned, the nationalized industries which provide services and others who can alone ensure the smooth flow of decisions and of facilities which such an attempt to create specially-concentrated growth requires.
2. The whole scale of the development of this Area, or indeed of any other area in this country or elsewhere, is conditioned by its prospects of offering employment to its inhabitants. It is true that an area can be dependent on employment which is to be found outside rather than within its boundaries, but if an area is thought to be suitable for rather more rapid growth than elsewhere, this is hardly compatible with the position of being a daily net exporter of people in search of employment. In the Lothians case, and again here, we have analysed what may happen as a result of present prospects. We have made recommendations, but we cannot create employment by wishing it. We can only indicate what might be done by others.

The Lothians Report suggested that the then-existing Government measures designed to increase employment in the development districts were unlikely to be adequate to sustain the rate of expansion proposed. Since the Lothians Report was written, the Government has in many respects improved its policies designed to induce new growth in the regions. It has reduced the size of industrial developments in over-employed areas which can proceed without permission, has brought the important sector of office employment much

<sup>(1)</sup> *Op. cit.* For this part of the present Report, the most relevant Volume of the *Lothians Regional Survey and Plan* is Volume One on "Economic and Social Aspects", prepared in the University of Glasgow and edited by D. J. Robertson.



more within the ambit of location-of-employment policy and has changed the system of inducements to industrial development.<sup>(1)</sup> On the present outlook these steps, while desirable, will not be sufficient, especially since at the same time the volume of mobility of industry required in Britain has been extended by further regional planning proposals indicating further areas for special attention. In such circumstances it is necessary either to reduce the number of areas to receive special attention, to improve on the past performance of indigenous industry or to increase the flow of mobile employment, and none of these has as yet clearly happened. Moreover, it is by no means certain that recent tax provisions encouraging regional development, though they are more clearly, and possibly more attractively, set out, are relatively more attractive, and they are less beneficial to the development of non-manufacturing enterprise. Though some employment in the non-manufacturing sector is generated mainly by the presence of population, and this may become increasingly true as the proportion of employment in manufacturing industry declines, the effort to introduce new industry of all types into the growth areas, and to stimulate improvements in the indigenous industries, continues to be as important as ever, and further improvements in Government measures are likely to be necessary.<sup>(2)</sup>

3. The Lothians Report made a special effort to emphasize that educational and health facilities, transport and other services should all be provided contemporaneously with the need for them in the developing community. It was observed that there was a strong tendency for the providers of such services to be public bodies with an obligation, statutory or otherwise, to provide them, and yet those public bodies felt their duty sufficiently discharged by making provision for the needs of an area without necessarily ensuring that the provision was made in a manner which would generate employment within the area. It is not sufficient merely to ensure that the children have a place to go to school. It is also important, for the healthy development of a large community, that this school provision should be within the community and not involve too much travelling out of it. This point is in some ways less important in the Grangemouth/Falkirk Area, which already has many of these services and therefore has a strong nucleus of this type of employment, but it nevertheless has to

be borne in mind. The point is partly one of timing—that employment in these sectors should be introduced contemporaneously with population growth rather than subsequent to it—and partly one of the effects of such activities in generating employment. On both scores prompt and adequate action to create facilities in the Area is desirable.

4. The Lothians Report discussed the various eyesores which were to be found in that area and the implications for a policy to deal with them. It suggested that there was no simple or uniform answer to the problem of dealing with these scars of industrial obsolescence, but that it was very necessary to set out a systematic process of improving or removing them. It advocated a rehabilitation team within the area and the preparation of a priority plan, and recommended that the arrangement by which 85 per cent of the cost of approved proposals was met by the Government should be continued. Additionally, it recommended a specialist group in the Scottish Development Department to assess proposals for rehabilitation. All these points are equally true of the Grangemouth/Falkirk Area and are so recommended.
5. The Lothians Report made a number of important suggestions to improve the system by which overspill tenants from Glasgow are selected by the overspill reception authority, and further suggested that the concept of overspill required to be interpreted with greater flexibility and to be more generalized for the central belt of Scotland as a whole, especially to include Edinburgh. This point has validity also in the present context, both because the Grangemouth/Falkirk Area is already a reception area for Glasgow overspill and because the process of its development will generate the possibility of further immigration from overspill sources whether these may be Glasgow or elsewhere. The present administrative arrangements are not flexible enough for the needs of the central belt of Scotland over the next twenty years or so.
6. The Lothians Report considered industrialized building as a means of increasing the pace of house building in the Lothians Area. This type of building is appropiate where a rapid programme of some size is in contemplation and should be considered for the development of the Grangemouth/Falkirk Area. The role of the Scottish Special Housing Association, as an adjunct to the resources of the local authorities in areas requiring specially substantial building programmes, was also referred to in the Lothians Report and is again recommended.
7. If there are a number of local authorities within an area which functions in many respects as a single economic unit, and they set up house-letting regulations which do not permit free transfer between the

<sup>(1)</sup> Cf. *Investment Incentives*, Gen. 2274, January, 1962.

<sup>(2)</sup> Regional policy is critically appraised in Thomas Wilson, *Policies for Regional Development*, University of Glasgow Social and Economic Studies, Occasional Paper No. 3; G. C. Cameron and B. D. Clark, *Industrial Movement and the Regional Problem*, No. 5 in the same series; and G. C. Cameron and G. L. Reid, *Scottish Economic Planning and the Attraction of Industry*, No. 6 in the same series.

authorities in the area, this cannot be in the interests of the region. This danger was referred to for the Lothians Area: the same is even more true in the Grangemouth/Falkirk Area where substantial authorities live cheek by jowl with each other: the Area needs complete flexibility of housing interchange for local authority housing. Indeed, the point goes deeper than interchange within the Area: welcoming "outsiders" and giving them house-room is an essential, if not the essential, part of the growth area concept.

8. The Lothians Report drew attention to the role of Edinburgh as a regional centre for East Central Scotland and to the tendency to "overpill" now inherent in Edinburgh's development. It recommended that the regional character of the capital should be reflected in its planning arrangements and in processes designed to reconcile and co-ordinate the plans of the East Central region as a whole. This view is again commended.
9. The Lothians Report emphasised the importance of training labour as an essential feature of the development of the Area's economy. This is specially true in the Grangemouth/Falkirk Area.

#### IV

#### Central Scotland in the 1980s

1.7. This Section presents a perspective on the situation of which the Area will find itself part as the years advance. There are a number of points which can be made about Central Scotland without much fear of their being reversed by unforeseen changes.

1. In the first place we know that the population of Central Scotland is likely to increase. As the result of a more rapid rate of natural increase due both to postponement of death and to an increasing number of births, its potential increase of population is larger than it used to be. In Central Scotland, and for Scotland as a whole, the actual rate of population increase is heavily dependent upon the level of net emigration but, though recently the trend towards emigration has increased, the fact of population increase seems indisputable. Government proposals for Central Scotland suggest that emigration will be substantially reduced. This is true both of the White Paper of 1963,<sup>(1)</sup> and of the more recent White Paper on the Scottish Economy.<sup>(2)</sup> It is possible, if there were many changes of circumstances, that regional policy might no longer attempt to develop Central Scotland, but here it is necessary to introduce in evidence factors outside the region which have been influential in creating the present regional policy and seem likely to continue to be operative. The major fact is the rapid rate of population growth in the South of

England and the Midlands and the problems of land use to which this population growth is giving rise. Immigration into that area is becoming an increasing problem and, for this reason if no other, it is reasonable to assume that the present policy of favouring the development of Central Scotland will continue. Moreover, while it is perhaps prudent to be cynical about Government policy, a commitment to a measure of regional development has been made by all the major political parties and, though one may be more sceptical about the extent of its success, it can perhaps be regarded as a political reality for some time to come. If it is not much of a success, perhaps a high rate of emigration will continue from Central Scotland, but even then the population is likely to rise.

2. All advanced economies are subject to the continuing risk of fluctuations in the level of economic activity. Failure to have adequate international policies to protect economies from the effects of others' erratic movements could produce an amplification of domestic troubles into international recession. On the other hand, it can be taken as a fact, which is influential and will continue to be so, that all governments are committed to the most vigorous efforts to maintain full employment. It would be rash to pretend that there is no risk of heavy unemployment on a more than local or seasonal scale emerging between now and the 1980s; but it still seems reasonable to assume that the commitment to full employment of the British and of other governments means that the long-term level of unemployment likely to be experienced in the United Kingdom, with perhaps the risk of a short-term departure, is that of full employment. It is also true that any programme for the development of the British economy, even one which involves fairly rapid technical change, including those techniques which are usually described as "automation", will be handicapped by an overall shortage of labour over at least the next decade. This point is reflected both in the work of the Manpower Research Unit<sup>(3)</sup> and in the assumptions of the National Plan.<sup>(4)</sup> We may then assume as a fact that Central Scotland is part of an economy which is likely to run at full employment and be short of labour. This does not mean that the Central Scotland economy will necessarily be as fully employed as the economy of the United Kingdom as a whole. On the other hand, even if regional policies are not specially successful, it seems improbable that the regional position could deteriorate so as to create widespread un-

<sup>(1)</sup> Op. cit. *Cmd.* 2885, 1963.

<sup>(2)</sup> *The Scottish Economy 1963 to 1970, A Plan for Expansion*, *Cmd.* 2866, January, 1965.

<sup>(3)</sup> *The Future of the Future*, Manpower Studies No. 1, Ministry of Labour, H.M.S.O. 1964.

<sup>(4)</sup> *The National Plan*, *Cmd.* 2764, September, 1965.

employment of a much larger kind than we have had in Scotland in the post-war years.

3. If the prospect is of full employment or almost full employment in Central Scotland and substantial emigration is to be avoided, there must be new industrial development, whether induced or sponsored by external agencies, or in part as a result of technical change and developments affecting existing Scottish firms. Central Scotland has been successively identified as one of the areas to receive special Government attention as part of regional policy, and this implies inducements to industries deciding to locate in the area, inducements to manufacturing investment and continuing special attention to the infrastructure and social investment which is a precondition of, and closely associated with, new growth.
4. New growth of employment will have to be accommodated with land and other provisions. One piece of evidence which now seems to be well-established is that new industry requires more space and, therefore, has a lower ratio of jobs per acre than industry before the war. Thus, industrial land is in greater demand than it was and there has emerged a tendency to shortage of good industrial sites in Central Scotland.
5. The trend in the composition of employment in the British and Scottish economy is away from primary and manufacturing industry towards service employment. Moreover, manufacturing industry has a higher proportion of administrative, clerical and technical personnel than it previously had. It follows that we may expect to find a greater proportion of such employment in Central Scotland in the 1980s. The success and buoyancy of the Central Scotland economy will depend to some extent on its ability to maintain a high proportion of the activities which this type of employment implies.
6. The tendency for land to be in short supply is not confined to industrial sites, nor is the tendency for any given type of use to require more land so confined. Leisure activities increase with a rising standard of living, and they need more land. Housing standards and housing demand can be expected to increase as our standard of living grows, and this will lead to greater demands for housing land.
7. A number of areas in Central Scotland cannot redevelop their older housing locations within the existing area of land devoted to housing or even within their boundaries. To some extent this problem may be mitigated by building high flats but, especially given the need to be generous in the provision of land for facilities which go along with housing, there are limits to this policy. Moreover, the Government, on the basis of social

arguments<sup>(1)</sup> as well as solid evidence on building costs,<sup>(2)</sup> have recently shown signs of wishing to reduce the tendency to build high to save land. Even without population increases the needs for redevelopment in Central Scotland will generate a demand for more land for housing. This point is specially relevant to Glasgow, but it is also an emergent truth for Edinburgh and for most of the industrial communities of Central Scotland, not excluding Falkirk.

8. Scots have appeared to be less willing, or perhaps less able, to buy their own houses than the English. It seems improbable, however, that the very much lower proportion of private housing in Scotland will remain static: it is likely to grow and, indeed, this is proposed by the recent White Paper.<sup>(3)</sup> This type of housing normally requires more land than local authority housing. It should also require high standards of attention to landscaping and environmental detail.
9. Glasgow already has an overspill problem which is admitted to be larger than was at first supposed. By the 1980s, Edinburgh as at present defined will certainly have overspill, and so too will most of the other communities of Central Scotland.
10. Some provision has already been made to meet the demand for new locations for development arising from redevelopment, which needs extra land for housing, industrial, commercial and recreational purposes and from the needs of an increasing population. Several new towns have been created in Central Scotland and plans exist for a number of growth areas, of which Grangemouth/Falkirk is one, but since the publication of *Cmsd*, 2188 it has become apparent that the scale of provision indicated in it will not be sufficient. If regional policy continues to be pushed, migration to England will reduce, and the White Paper makes insufficient allowance for the natural increase of migrants which will now swell the home population. It also makes insufficient allowance for increases in the demands on land for any given use coming from both the existing and the prospective population. More provision in Central Scotland is required.
11. In the foreseeable future the number of motor cars per head of the population is likely to continue to grow. This is one of the most predictable consequences of our rising standard of living. Every report which has investigated the point has come

<sup>(1)</sup> At present our knowledge of the social consequences of living high is less complete than it should be, though we have our *trials*. It is hoped that a study on high-flat life, recently started by the Department of Social and Economic Research of the University of Glasgow, under the guidance of Miss Pearl Jephcott and supported by the Rowntree Trust, will help our understanding.

<sup>(2)</sup> *On Flats and Houses*, Ministry of Housing and Local Government, 1958.

<sup>(3)</sup> *The Scottish Housing Programme 1965 to 1970*. *Cmsd*, 2837, November, 1965.

to the same conclusion. Industrial Scotland has somewhat fewer cars per head than are to be found in the South but the evidence suggests that the gap will narrow, and hence the growth of the motor car population here will be rather more rapid. The roads to provide for this expansion are, in outline, beginning to emerge and will certainly shorten the time-distance between the various parts of Scotland and within Central Scotland. Personal transport and better roads are likely to be important factors in making Scotland smaller than it is at present, in terms of time. At the same time, the linking of Central Scotland to elsewhere by air may minimise the extent to which it can be thought to be, in personal terms, a far-out location. The liner train development should mean speeding-up goods traffic by rail and concentrating it on main centres. The new communication patterns will bring Central Scotland together and will make it more possible to disperse the population within the area of Central Scotland, provided this is done with due attention to the focusing of communities in relation to roads and transport facilities.

1.8. In summary, Central Scotland in the 1980s will have more people, and these people will, individually and collectively, need more land for all purposes. The existing communities will not be able, within existing boundaries, to accommodate these people nor have the plans advanced up to now seemed likely to be adequate to take the numbers that will be coming forward. This point is dependent on the level of emigration, but not totally so. If regional policy continues and succeeds, new industrial development will certainly arise. The scale of regional growth depends upon stronger regional policy than presently exists, but growth seems likely even though it may not be on a desirably-large scale. The commitment to full employment, if not wholly satisfactory for its task, is at least sufficiently good as to make a 1980s-type depression unlikely. Within Central Scotland the links between communities will be more effective as a result of a changed communications pattern, while at the same time development can be more widely spread provided it is linked to main communications. It is against this background that a Grangemouth/Falkirk study has to find its place.

## V

### Grangemouth/Falkirk and its Neighbours

1.9. The Area with which we are dealing consists of a group of closely-related communities of which Falkirk is the most central. They are at present separated by discernibly wide tracts of country from Stirling, Cambusnash, Linlithgow, Edinburgh, the communities with which the Lothians Regional Survey was concerned. We have regarded Edinburgh in relation to this Area in much the same light as that in

which we considered it for the Lothians study. It would be wrong, for example, to forget the presence of the capital city in relation to commercial facilities. It seems obvious that there will be some commuting for educational and employment purposes to and from Edinburgh. On the other hand, for the normal operation of the regional labour market, Edinburgh is too far away to present a major source of employment or a major source of labour. Its principal effect on the Area is that it is certainly in the widest terms a regional centre: development in the Grangemouth/Falkirk Area must reflect this. Stirling is the county capital and administrative centre, and the site of a new university. Again there is, and will no doubt continue to be, movement to and fro for employment and education, but the distance, and present evidence, suggest that Stirling is not part of the same daily-functioning area as Grangemouth/Falkirk, except perhaps in relation to the western parts of the Area. Linlithgow seems likely to have a special role in relation to the Grangemouth/Falkirk Area, because it is developing as an important centre of private housing in the east-central part of Scotland. The Lothians area is within commuting distance, but the volume of commuting may well decline rather than grow with the establishment of stronger industrial activity in Livingston. The two communities may perhaps be regarded as complementary rather than competitive, both representing an increase in the scale of east-central Scotland.

1.10. The case of Cambusnash is somewhat different, and its position relative to Grangemouth/Falkirk has been looked at rather closely. Cambusnash has put forward a shopping centre of a specially ambitious design which is reckoned to act in some measure as an attraction to shoppers from the surrounding areas. The influence of this Cambusnash shopping centre has been duly taken into account in our considerations on this point and has been one of the factors determining our decision to make the main shopping centre in the Grangemouth/Falkirk Area at Falkirk rather than elsewhere, the western part of the Area thus owing for this purpose some allegiance to Cambusnash. Cambusnash has again been important in our discussions of industrial sites, since the employment pattern of the western part of the Grangemouth/Falkirk Area will naturally be affected by its presence. It seems likely that an industrial location near to Cambusnash may be attractive to industry, while Cambusnash is becoming short of industrial sites. For these reasons we have made an especially large provision of industrial sites in the western part of our Area.

## VI

### Grangemouth/Falkirk at Present

1.11. The Grangemouth/Falkirk Area has developed as a series of related industrial and mining communities. While these communities have a lot of new social capital, large areas in need of redevelopment are a characteristic feature of them all, except the most rapidly

growing one of Grangemouth. Housing will require more land simply to provide more adequate accommodation for the existing population. Industry has found it difficult to find large, uncluttered industrial sites in existing communities except at Grangemouth, where the present allocation of industrial sites is well nigh full. The Area lacks a modern appearance and has a number of eyesores resulting from industrial obsolescence. The present impression of the Area is therefore one of a place in need of redevelopment and in need of space for that redevelopment beyond the existing boundaries of communities.

1.12. The communities of the Area were all separate but have been tending to coalesce in a somewhat haphazard way. The well-informed man can no doubt distinguish between them, but there has been a tendency for them to lose their clear geographical identity.

1.13. The present condition of industry in the Area is discussed more fully elsewhere. In brief, the expanding industries in Grangemouth are based on chemicals and, therefore, more strongly inclined to generate demands for capital than labour. The light castings industry is very important but has not been capable of expansion in recent years. Indeed, all the major manufacturing industries in the Area—castings, light metals, bricks and timber—have seen a decline in the recent past. The trend of total manufacturing employees is slightly downwards. New industrial development is needed even for redevelopment and continued existence.

1.14. The Area has good rail communications, but its roadway system requires to be improved.

1.15. Some of the sites for building in the Grangemouth/Falkirk Area present particular difficulties. In making our proposals we have taken account of problems of mineral subsidence, of ground over which the Coal Board wishes to retain rights of mining, and of issues arising from the natural formation of the land which provides poor foundations. We feel, however, (a) that the costs of foundations upon bad ground can be exaggerated, especially since Britain is generally subject to difficult building in and around industrial centres, and (b) that the ill-effects of future undermining could be minimised by agreements with the Coal Board who appear prepared, for suitable compensation, to leave untouched portions of land which they might otherwise mine under at some future date. In practice, the land which is subject to most difficulties of natural conditions and of undermining—that lying to the north-east of our Survey Area—has not been used in the initial plan, but these flat lands would be available for future development.

## VII

### Redevelopment or Growth?

1.16. When we came to this study we had first to ask ourselves whether it was sensible for the White Paper on Central Scotland to design-

ate Grangemouth/Falkirk as a growth area. Would it perhaps be better simply to look at it as an area in need of redevelopment, without necessarily introducing any substantial amount of additional population or employment? The case for doing this is the evidence that a large amount of redevelopment is needed and will need land, capital and attention. Further, despite the growth of the Grangemouth complex, the Area does not have a buoyant employment structure. The other industries of the Area have had much less success and the Grangemouth complex, though it has contributed new jobs, is capital-intensive rather than labour-intensive. The administrative problems of divided communities which characterize the Area create an unfavourable atmosphere for growth. Some of the problems of foundations and undermining again suggest special difficulties.

1.17. The case for showing growth is drawn from two broad considerations. First, communities which can take extra population and industry are required in Central Scotland: there is a shortage of such communities and of provision for housing and industry to match the kind of population increases which seem likely to emerge. The location of this Area has a number of satisfactory features, especially since it helps to fill the gap in the Central belt of Scotland between the major centres of Glasgow and Edinburgh. The Area's existing potential for growth has been somewhat obscured up to the present, since losses from the declining industries have offset the employment gains of the growing industries. Secondly, there are the reasons intrinsic in the position of the Grangemouth/Falkirk Area itself. To argue for redevelopment without any growth would set the planner and all concerned great difficulties. To recommend, for example, that new industry might be introduced to the Falkirk area without envisaging an increase in the population, and hence the labour force, suggests a balancing operation of somewhat small and tricky dimensions. Housing redevelopment without the prospect of the improved facilities which come with larger populations would be difficult. Major central-area developments would be handicapped by lack of growth. Thus it is easier to redevelop if there is also a prospect of growth.

## VIII

### The Choice of Targets

1.18. There is no special magic about the process by which we decided upon the targets which we have put forward for the further development of the Area, and this Section, therefore, sets out simply the process by which we have reached our conclusions.

1.19. We began with a number of facts.

(a) The population of the Area at present is of the order of 120,000.

(b) The largest concentration of population is that of Falkirk which, though it has a town centre with a range of shopping

facilities, is at present hardly of the size to warrant a full pattern of such facilities and it has no marked amount of office employment.

- (c) Much of the remaining population of the Area is to be found in three small burghs—Grangemouth, which is close to Falkirk; Bo'ness which, though its most direct urban link is probably with Falkirk and Grangemouth, lies a little to the east; and Denny, some little distance to the west.
- (d) Apart from these population concentrations, the remainder of the existing population of the Area is to be found in non-burghal settlements such as Larkhall and Steinhilshill, or scattered over the Area.
- (e) The present industrial structure of the Area is not such as to lead naturally to large-scale growth. On the other hand, declining activities, since they are becoming of less overall importance in the Area, are less likely than they were to offset expanding activities.
- (f) The level of unemployment for males in the Area is below the national average for Scotland, but the rate for females is well above that for Scotland as a whole.
- (g) The travel-to-work pattern in the Area sets strongly towards net movement into Grangemouth for work and out of Falkirk. The net daily outward flow to work for the Area as a whole is not very substantial.
- (h) Housing and associated facilities in the Area are in need of redevelopment, and this redevelopment will require more space.
- (i) While there are facilities for education, entertainment and health and welfare services, people appear to have to move out of the Area to meet all their demands for a number of these services.
- (j) There is a tendency for owner-occupiers who work in the Area to live outside it.
- (k) The Area with its present birth and death rates has a growing population, but some of this potential population growth is lost by migration.

1.20. These are the simplest and most obvious social and economic facts with which we became acquainted when we commenced our study of the Area. They add up to an Area which has no special inherent capacity for growth or change at present, except that one section of its industry is rapidly expanding (while the declining sections are naturally becoming of proportionately less importance). It also suggests an Area with no very great reserves of labour, though with some unemployment especially among females. Though it has to some extent become an integrated community and has developed central area facilities, the scale and mousing of population has not been sufficient to produce a thoroughly effective result. The housing situation and other aspects of the architectural character of the Area suggest the need for improvement

and redevelopment. The conclusion that might be drawn from these circumstances is that a marginal change would be difficult to implement because the Area would not of itself generate enough labour, unless the marginal change were very small, nor would such a marginal change be sufficient greatly to change the direction of the Area's present development. Moreover, a marginal change would leave the burden of redevelopment and improvement to be borne by the present scale of activity of the Area.

1.21. With the view that effective change in the Area is needed and would mean more than a marginal shift in emphasis, we next looked at the background of potential future population in Central Scotland. Areas to hold major expansions of population, where these can be reasonably fitted in, will be needed to cope with the scale of development of Central Scotland advocated in Cmd. 2188, especially if, as IV above suggests, the figures in Cmd. 2188 are too low. The population increase for this Area, suggested in the White Paper on Central Scotland (Cmd. 2188) with which this Survey began, was 50,000. This, however, is a most ambiguous figure. It is not said in the White Paper whether the 50,000 is meant to mean 50,000 immigrants or a growth to 50,000 of immigrants plus their natural increase by some particular date (either excluding or including the natural increase of the existing population). If the view were taken that 50,000 meant the overall growth of the Area by some date, then the prospect of the Area taking a net inflow of immigrants would be small and very much dependent on what assumptions were made about the future of net emigration from the Area, which is at present reducing population growth and offsetting natural increase. It seemed more reasonable to take the view that this was merely a rough guiding figure, perhaps reflecting the scale of immigration suggested, and that the main point of the White Paper was to put this forward as a growth area which should, if possible, make a contribution towards the redevelopment and relocation of population in Central Scotland.

1.22. The type of population increase which is required to transform this Area into a growth area is very much related to the need to develop a quite new scale of provision of labour so that major new industrial developments can be contemplated without running against the rather small amount of spare labour capacity at present available. If central area development on a sub-regional scale is to be a real and effective possibility, again a population increase of some size is suggested. The Area will certainly require redevelopment: if redevelopment is to be associated with major clearance schemes dictated by growth so that the costs of knocking down are carried by the obligation to build anew, then again changes on some scale are required. If the Area is to function as one urban area, deriving the benefits of employment stimulation from such a process, again a sufficient increase of population is required to fill in the gaps. There is no inevitable logic in the target for population increase that might be chosen from this com-

limitation of circumstances. It should certainly be enough to allow the possibility that the existing population, contemplating new growth, will cease to become net emigrants and to allow for an immigrant flow both to revitalizing the Area and to take some of the burden of Central Scotland's population growth.

1.23. We then turned from this kind of consideration to the physical planning situation. The ultimate question is whether all the needs for land for industrial, recreational, housing and other purposes for any given population can be conveniently met within the Area. Our colleagues in the University of Edinburgh studied this matter intensively, and their techniques and results are displayed in their section of our overall Report. The line which we agreed should be followed was to see whether further population could be injected into the Area in a way which would result in a relationship of industry, housing, recreation and shopping facilities which would appear to give the Area a degree of unity as a planning concept and in its economic functioning. Our colleagues naturally considered matters such as southward slopes for housing, flat land for industry and so on. A further factor that had to be borne in mind was the need to ensure that once the Area was at the end of its planned development there would still be capacity for growth inherent in the available land. In the upshot, the kind of arithmetic suggested by trying to bring in around 50,000 to 55,000 immigrants plus their natural increase squared with what seemed to be a convenient and perfectly feasible mixture of industrial, recreational, housing and commercial land uses as disclosed by the analysis of the physical planners. This kind of figure is sufficient to provide a more unified population distribution and one which will warrant service and commercial employment on a proportionately greater scale. It will also provide a labour force which, if industry can be found, could sustain a larger industrial complex in the Area.

1.24. It should be stressed again that there is no inevitable logic in this discussion. Since we have not studied all other areas we cannot say that there are no other parts of Central Scotland where the same kind of treatment might be carried through with results which might be as effective. On the other hand, informed opinion is worried about the availability in Central Scotland of the number of locations implied by the sort of population increases implicit in current regional policy for Scotland. The targets which are being set in successive Government pronouncements amount to saying that net migration should reduce to a very small amount and, if possible, to zero, and that natural increase should, therefore, be kept at home. Such targets are associated with a desire to improve the prospects of parts of Scotland other than the Central Belt or, to put the point in what is probably a more realistic way, to extend the area of influence of the Central Belt. But such a policy requires growth, and sites available for growth, in Central Scotland itself. The need for land for development in Central Scotland is, moreover, accentuated by the current need to

redevelop existing areas, which is likely to mean that most existing land uses will require more land than they do at present. Though some of the land which we suggest might be developed in the Grangemouth/Falkirk Area has difficulties of subsoil and foundations, such difficulties are not unusual in Central Scotland and do not warrant the rejection of the sites chosen for development in this Area.

1.25. There are favourable factors for development in this location. It exists as an urban community. It is attached to a developing port. The Grangemouth industrial sites have already proved their value and importance. The Area can be pulled together as a significant new unit. Perhaps above all, it is well placed in relation to transport. If it cannot be argued conclusively that the answer which we formulate, of a growth in the population of the Area to something like a quarter-of-a-million over the next twenty to twenty-five years, is absolutely right, it can also be said that there is no great evidence to suggest that this answer is wrong, or that, if the general assumptions of regional policy are followed through, especially in relation to industrial development and employment growth, the expansion of this Area will not be warranted. The minimum that can be argued for the plan put forward here is that it is no worse a solution than might be suggested for other parts of Central Scotland. But much more can be suggested, since other locations are in short supply, and there are some clear advantages in transport and other locational factors for this particular Area.

1.26. The targets indicated here are therefore very much compromises, but they are about right in scale, both because they represent population developments that can take place in this Area with acceptable physical planning standards and because they provide a new initiative for redevelopment, as well as new growth and a sizeable labour force which can be brought into being and deployed. Like almost everything that one might say about "growth areas" in Central Scotland, the success of the scheme depends almost entirely on the availability of employment. The scale of the proposals is likely to be to the benefit of non-manufacturing employment in the Area. The fact that new industrial sites and new facilities are proposed, together with the related supply of labour, is likely to make development in the Area more attractive to industry than the choice of a location in an older industrial area which has less prospect of redevelopment and less prospect of adequate inflowing labour supplies. The Area has the promise of continued assistance from the Government's location of industry policy.

1.27. The targets then are in terms of an increase to just under a quarter-of-a-million. The actual figure used in the detailed proposals is 230,000. (The implicit population assumptions are given more fully in Chapter 3.) The plan is feasible provided new industry can be obtained. The resultant development of the Area is likely to be much more pleasing and much more satisfactory than its present development.

1.28. The timing and phasing of growth raises one of the more complex issues for this type of planning. On the one hand it is necessary to give the discussion some precision in its statement of targets and target dates so that the detailed implications of growth can be considered. These details must range widely. For example, attribution of an age and sex structure at future dates, on whatever data are available and with the aid of sensible assumptions, is a necessary prelude to recommendations on the volume of labour that will be available and the employment that will be required, or the volume of educational or health provision that will be needed. Housing targets have to be related to dates and to assumed populations. On the other hand, such forward-looking estimates are unlikely to be precisely realized in practice and require, and should receive, continuing emendation in the light of changed circumstances. The exercise is, however, both necessary and worthwhile as a means of working through the questions that arise in planning and as an aid to perspective.

1.29. In the present case precision in our choice of targets has raised the following major issues.

- (a) What should be the target date for development to 230,000? We have chosen to put this at 1985/6, since a twenty-year period seems to provide a reasonable time for phased development requiring, and it is to be hoped receiving, planned and continuing administrative attention.
- (b) What should be the phasing of growth between now and 1985/6? We have taken the view that planned redevelopment and expansion is a slow process which can hardly yield major results in its first five years. In the subsequent five years the main developments to be expected are those in and around the present main centres of population. While there will be some immigration, the demand for land will be much influenced by the needs of redevelopment and the population composition will be much influenced by natural increase. During this first decade of development we would hope that plans along the lines indicated in this Report would be worked out for some of the newer centres of population and larger new developments. We envisage these as occurring mainly in the western part of the Area, which might then grow quite largely on the basis of immigration. We then envisage a rather slow start over the next five years, giving way in the first half of the 1970s to redevelopment combined with growth and immigration in and around the existing communities of the Area, while the major expansion to the west is thought of as the main impact of development in the second decade of planned expansion. This phasing is reflected with more accuracy and elegance in the statement and analysis of Chapter 3, which makes the necessary assumptions about migration.

(c) A community does not stop growing or changing when its planners reach their targets or completion dates. Indeed, if this were to happen, it could be argued that the planners had chosen unwisely, since their plans had no capacity for unsponsored growth. What should be said of the period beyond the mid-1980s? We have not attempted precise targets, but we have tried to ensure that our calculations of land available and land uses foresee such future needs. We have given an indication of the kind of population changes that trends implicit in our planning might produce by the end of the century and have, in our physical plans, given a sketch of the locations that might be available for such development and reserved for it. It seems likely that natural increase in the twenty years or so beyond 1985 could bring the population of the Area close to 300,000.

- (d) How much detail should be given on the future (expressed as targets) of different parts of the Area? Physical planning is, of course, located in that its proposals refer to quite precise places and are mapped. But it is necessary to take a wider view of the area on which discussion is based to provide for some degree of balance in land-use requirements and for the statement and analysis of proposals relating to population, households, employment, etc. We have in most of our thinking regarded the whole Area as a unit, since it can be thought of as functioning as a complete and balanced sub-region—or, to speak more accurately, such inter-relationships as the Area as a whole has with surrounding areas can be reasonably clearly diagnosed and stated, and most of the inter-relationships are within the Area. The inter-relationships of employment, housing, social facilities and land-use within the Area are already complex and our proposals are deliberately designed to increase this interweaving. It is not, therefore, easy to divide the Area for purposes of analysis, nor is it always clearly necessary. On the other hand, some limited distinctions can be made.
- (1) A distinction can be made between the urbanised and the landward parts of the Area. This distinction could be made in terms of the present urban development of the Area and its rural parts, but we have preferred rather to include landward areas which we propose for development as part of the urban sections of the Area so that the landward or rural residual area is that part of the total Area which is neither highly developed nor proposed for development. In practice, this means the northern sector of the study Area—lying mainly to the north of the road to Kincardine Bridge and including the remainder of the northern fringe of the Area. (2) While the small burgh of Bo'ness is allied to other parts of the Area in its daily life, it is to



some extent distinct both at present and in our proposals and is so distinguished. (3) This leaves as one unit the large central part of the Area running from Denny through Falkirk to Grangemouth and including Larbert and other urban areas adjoining Falkirk. We have thought of this as one unit and have not produced artificial sub-divisions for separate sections of it, though, on the other hand, when our recommendations bear more particularly on one part rather than another, they are naturally framed accordingly. There is an exception to this: the area of Falkirk and Grangemouth is to a considerable extent to be thought of in terms of redevelopment, though with some growth arising from natural increase and immigration, whereas the locations near to Denny are more largely concerned with new development, so that for some purposes the western part of this urban centre of the Area is distinguished from the eastern part.

- (a) At various points we have made forecasts of working populations, employment needs, housing needs, required social, health and educational facilities, transport, commercial development and other matters with which we have been concerned. These have been set up and discussed within the terms of the sort of targets and phasing indicated in paragraph 1.27 and in this paragraph.

## IX

### Outline of Proposals

1.30. Proposals for the development of an Area with a present population of 120,000, so that it almost doubles its population over a period of twenty years or so, must necessarily be very carefully worked out in physical planning terms: this has been the concern of our colleagues in the University of Edinburgh. This Section indicates some of the main priorities put forward after discussion as our guide lines for the physical plan.

1.31. These guide lines may be listed as follows:

- (a) If the Area is to develop its maximum potential in employment and in shopping and commerce, and its maximum convenience and contribution to the life of the community from the provision of such services, it is essential that it should be focused upon a regional centre. We recommend that Falkirk should be this centre. It has the advantage of already being developed as something of a sub-regional centre for the Area; it is the centre of the sub-regional transport routes; and it is possible to devise a pattern of population increases which will emphasize this focus on Falkirk. The only alternative suggestion might have been to put new central-area facilities further

to the west. This, however, would bring the development of such facilities into a district which, while we recommend it for considerable expansion, will be slower to move, and is also for such purposes to some extent within the ambit of Gumbernald.

- (b) It is evident that the main growth point for industry at present is around Grangemouth. On the other hand, the type of employment and industry which has been created in Grangemouth has been more prodigal in its use of land than demanding in its use of labour. Our recommendations on industrial sites increase the allocation of land for this type of industry near to Grangemouth. If, however, additional population is to develop in the Area immigrant industry will require sites for development and, while leaving Grangemouth as the chief industrial location, these further sites should be spread to reflect the residential pattern of the Area. We have therefore suggested the creation of a number of other and, for the most part, smaller sites for different types of industry at other points throughout the Area, as well as further large industrial sites around Grangemouth. A large industrial site in the west of the Area is recommended. It should be developed rather in advance of housing developments in the western part of the Area and might serve the needs for expansion of Gumbernald. The potential expansion of the demand for land in the Grangemouth industrial complex is difficult to predict. We have left the flat land lying to the north of the Carron for potential large industrial sites for large users, either of the petro-chemical type or otherwise. This land is not included in the development proposals we put forward but is available if required. At the scale of population increase we suggest, development of this land for other purposes does not seem to be necessary now, since there are foundation problems and negotiations with the National Coal Board would be necessary, would it be desirable to put a large population on this flat land within the period up to 1965. It stands ready, however, for industrial development if required.
- (c) The redevelopment needs of Falkirk and its present congestion make it clear that more land must be allocated for Falkirk. It was therefore clear from the outset that the potential inflow of immigrants into Falkirk, narrowly defined, would be small. Grangemouth, while less in need of redevelopment, is also short of land. Some capacity for growth is to be found in and around Bo'ness, and this has been exploited in the proposals. Quite a lot is to be found by strengthening the links between the various communities centring on Falkirk: this again has been recommended, together with major expansion

to the south of Falkirk and north of Steenhousemuir. The other major expansion recommended for residential facilities, beyond the needs inherent in the existing population, is to the west around Denny. These proposals serve another purpose which we have tried to reflect: that if major developments are contemplated they should be attached where possible to existing developments, but that it should be possible to develop fairly large sites uncluttered by existing buildings.

- (d) One of the main attractive features of the Area is its accessibility to the major through-routes (both road and rail) of Central Scotland. Our proposals have tried to locate population and industrial sites to make the most of this possibility.
- (e) We have been particularly concerned to provide for the development of suitable public transport facilities, though less in terms of very short distances than of communication with other parts of Scotland and elsewhere. This Area is uniquely favoured, since it lies on the main rail lines between Glasgow and Edinburgh and from these places to the north, with the junction for the north at Larbert and the main east-west station at Falkirk. Apart from emphasizing a change in the location of the main station at Falkirk, we have been able to frame public transport proposals quite simply in terms of improved rail services. Bus services are at present reasonable and could easily be improved.
- (f) We have not felt obliged to regard the existing green belt zoning as a fixed commitment, but have nevertheless given full weight to recreational needs. The housing and industrial purposes of the region should have priority near its centre. Outdoor recreational facilities near the centre should be on a small scale and related to housing. Major recreational areas should, for the most part, be made readily available but peripheral. The form of development proposed for the Area has made peripheral recreation perfectly feasible, and the recreational sites have been disposed appropriately around the proposed urban development.
- (g) There is at present a shortage of housing, and of housing sites, for owner-occupation in the Area. This can be rectified in part at Linlithgow outside the Area, but should be reflected in part also at Denny to the west and to the south of Falkirk.
- (h) We can see the possibilities of Cumbernauld as providing central-area facilities for some of the inhabitants to the west of this Area. In industrial and employment terms, Cumbernauld appears to be likely to become short of industrial sites, and this may be an inhibiting factor for its development. We have reflected this in our provision of industrial sites. We envisage daily commuter and shopping

flows between Cumbernauld and the western part of the Area, and have reflected these in our road proposals.

- (i) The further development of this Area will require careful attention to the provision of adequate services. Water supplies are potentially more than adequate and this may prove to be specially important in attracting developers.
- (j) The Area has been short of high-quality senior secondary schools and of further education. Given that a new university is to be located at Stirling and that Edinburgh is already, and is likely to become even more, a noted educational centre, we have not thought it desirable to make any proposals about universities. We are also mindful that in the Lothians study we suggested that land might be left for university development, or development of a similar type, in that area. On the other hand, improvements in the scale and quality of secondary provision, such as would be appropriate to an area of the larger size now envisaged, are matters of great importance, and improvements in technical education facilities ought to reflect the increased size of population.
- (k) The development of Grangemouth Docks is obviously a matter of importance for Central Scotland and of particular importance to this Area. We therefore welcomed the news that these docks were to be further developed as a matter of urgency. We have tried to provide in our proposals for adequate road links to the docks.
- (l) The development of employment in the Area is discussed in Chapter 4. The prospects for the Area depend on a successful Governmental policy on industrial inducements. This is a point that this Area shares with all areas in the Central Belt of Scotland which has not secured enough industry in the past to retain its population increase without emigration. We have tried to devise a layout for the Area and to provide infrastructure and facilities to give the best possible chance for such new industrial development.

## X

### Administrative Implications

1.32. This Area is at present administered by a complex structure of local authorities. The landward parts of the Area are looked after by Stirling County Council, except to the east where the landward area is the concern of West Lothian County Council. Each of these County Councils and the large burgh of Falkirk are planning authorities. The small burghs of Grangemouth, Bo'ness and Denny are not planning authorities but have planning interests and opinions. We have not thought it necessary to reproduce the history of the interchanges

between these various authorities on the planned development of the Area but, especially in the case of the relationships of Grangemouth with Stirling County Council, discussions have been far from harmonious. We have observed the way in which the administrative structure of the Area works at present and have looked at this in detail in some instances. It is impossible to escape the view that the development of the Area would proceed more smoothly if local authority relationships were more harmonious and integrated. This is probably especially true of planning for industrial development. One of the most obvious characteristics of local authorities is that they look after the localities in their charge. If this Area is to be developed as one unit, it is thoroughly desirable that it should be in the charge of as few local authorities as possible.

1.33. The proposed plan for the Area will leave the position of Bo'ness in its relationship to the other communities of the Area much as it is at present, since we suggest that, though Bo'ness should become larger, it should still be to some extent a detached community. Provided that discussions between West Lothian and Stirling County Councils on common problems in the development of the Area are frequent, no harm to the potential development of the Area should arise from the administrative complication of leaving the remit of West Lothian as it stands and leaving Bo'ness as a small burgh within West Lothian, though both authorities could be affected by proposals for modernisation of local government in Scotland which may come out of the work of the Royal Commission on Local Government in Scotland.

1.34. Though some parts of the landward area of Stirlingshire within the Area of this study will not be much affected, our proposals will bring large parts of the rural countryside, and most of the non-burghal settlements such as Larbert, within the one urban community. In general, the proposals which we advance should make one unit out of the whole area from Denny in the west through Falkirk to Grangemouth in the east, with rounding out of urban development both to the north and south between these two locations. We are firmly of the opinion that to develop this as it should be developed—as one unit—it should become a single local government area either as a large burgh or as a new city. We realize that this is a contentious recommendation, but we regard it as important. The development and redevelopment of the Grangemouth/Falkirk Area as a whole depends upon a successful effort to pull together and make the most of this large urban region in its centre, to plan new building development alongside the redevelopment of older areas, and to link the existing urban communities more effectively together through an integrated plan for housing, industry, commerce, recreation, transport and other land uses. It should perhaps be stressed that this is not simply a proposal to allow Falkirk to absorb other communities. What is needed is a new community under a new local government.

1.35. The task of development (including the

attraction of industry and commerce) which would fire such a new large burgh or city would certainly require special planning staff and planning resources, and a degree of developmental effort beyond that continuously required from local authorities, resembling rather the work of a new town development authority. We recommend that some such development authority should be established for the period of major growth with powers similar to those of a new town development corporation. We suggest that this authority should be commissioned to deal with an area with the same boundaries as the proposed new local authority and that interlocking membership should be one of the principal aspects of arrangements designed to ensure close co-operation between the two bodies. This suggestion of a joint local authority and development corporation approach to an area scheduled for substantial expansion, although it is still novel, is not new. A very similar suggestion was made in each of the advisory reports submitted to the Minister of Housing and Local Government on the possibilities of major expansion of the Ipswich, Peterborough and Worcester areas. An arrangement of this type seems to be envisaged for the expansion of Warrington. The device is now described as "town doubling" in discussions in England. The essential issue is that in areas in which substantial populations already exist and where local government is well established, a local authority type of government is naturally appropriate. But on the other hand, areas designed for expansion which is large in scale in relation to their present size raise problems relating to planning powers and the resources of personnel required for planning, which require special arrangements such as those made for new town development corporations. The administrative device required is therefore some sort of marriage between the two arrangements. This type of marriage is likely to be needed quite often in future, both in England and Scotland, since it seems clear that the creation of new centres of population in the form of new towns may well give way to renovated and expanded new developments based on an old community. The details of this proposal would naturally require very careful attention by the Scottish Office and cannot be set out fully here. It seems likely that the matter would require parliamentary authority. We hope that this proposal will attract favourable notice from the Royal Commission which is now discussing local government in Scotland.

1.36. We are in no doubt that a major administrative reorganization is needed, both in the interests of the present functioning of this Area and still more if it is to be specially developed, as the White Paper on Central Scotland suggests. Without an administrative reorganization we consider that the proposals for development we put forward here will proceed only very haltingly. On the other hand, paragraphs 1.34 and 1.35 above may prove more than is feasible in the way of reorganization at the present time or in the near future. This would be a pity since growth may be hampered, while in the long run the Area we designate for

special urban development will, if it to develop in practice, inevitably coalesce into one urban community. Two administrative features are essential if development on any scale is to be achieved. First, an appropriate staff must be collected and deployed as one agency in the planning of the urban area of Grangemouth/Falkirk. Secondly, powers relating to planning, the attraction of industry, education, housing and roads must be exercised in a uniform way in the interests of the Area as a whole. No problem arises for education, which is already under one authority, Stirling County Council. What arrangements other than the proposal in 1.34 and 1.35 might achieve these results? Two comments may be offered:

(a) The White Paper on the Modernisation of Local Government in Scotland<sup>(1)</sup> had some deficiencies—especially in its treatment of the present cities in relation to surrounding urban communities—and the task of considering the appropriate structure of local government in Scotland has now been remitted to a Royal Commission. The broad outline of the White Paper's proposals would presumably have created one upper-tier authority and lower-tier authorities for this Area. The division of powers suggested in the White Paper would have given planning, classified roads and education to the upper-tier authority. Housing would have been left to the lower-tier authorities. Such a change would presumably have brought together the planning authorities of Falkirk and Stirling County Councils with the necessary complement of powers for development. A big enough planning team to do the kind of job with which this Report is concerned would have been needed; but, if there were one planning authority, arrangements could perhaps have been made to give it a large team to work on this one urban development. It would have been necessary to ensure that this planning group operated as an effective agent in attracting industrial and commercial development. The White Paper left housing allocation in the hands of lower-tier authorities, and this would have created very real difficulties, though the extensive introduction of the Scottish Special Housing Association and of broadly-based overspill agreements would have given some, though perhaps not enough, freedom in housing allocation to secure the necessary effects of flexibility and of the relation of housing to industrial policy.

(b) If no formal administrative changes are possible, the only proposition that can be put forward is one of informal arrangements. The key authorities in this would be Stirling County Council and Falkirk, and the key need would be to bring their planning efforts together. It might be possible, with the agreement of these two authorities and the support of the Scottish Office, to create a planning team to

develop the urban core of the Area in one harmonious and integrated plan, though the implementation of the proposals would raise real difficulties.

## XI

### Concluding Remarks

1.37. This Chapter is both an introduction and a statement of the major issues with which our work has been concerned. It should be read along with the work of my colleagues which follows. These concluding remarks provide a summary which, though less than comprehensive, may be found to be a valuable aide-memoire.

1. The Grangemouth/Falkirk Area should be expanded to 230,000 by about 1985/6.
2. This expansion will require a quite new level of planning and development effort in the Area.
3. Redevelopment of some of the older parts of existing communities will need special attention, and this redevelopment will increase the land required in the Area to accommodate its existing population.
4. The process of development and redevelopment recommended would have as its major physical result the creation of a large urban complex stretching from Denny through Falkirk to Grangemouth and including Larbert, Stenhousemuir and Bonnybridge. This urban community would be both larger and more integrated than the present collection of urban communities from which it would be formed. It would require to be developed as one unit.
5. It is therefore recommended that this new community should be constituted as a new large burgh or city and that for the period of its rapid growth a development corporation, with some degree of interlocking membership with the local authority, should be constituted to plan and carry out the development.
6. Bo'ness should also be expanded.
7. Recreational planning in the Area should be designed to be interlarded with urban development, with more expansive recreational opportunities and open land on the periphery.
8. Industrial dereliction and eyesores will require similar treatment to that suggested for the Lothians.
9. The major location of central-area (shopping and commerce) facilities should be at Falkirk.
10. The Area is well placed for both road and rail communications with other parts of Scotland, and proposals are made to strengthen this feature as well as to improve road communications within the Area.

<sup>(1)</sup> Cmd. 2067, 1963.

11. The links between the Area and Cumberland will require special attention.
12. The Report and its studies contain analyses of the present scale and required future development of educational, health and social facilities.
13. The housing stock of the Area requires to be improved by redevelopment. In the extension of the Area to accommodate new population, the proportion of owner-occupied housing will require to be increased.
14. The proposed growth of population should allow for the introduction over a period of twenty years of around 50,000 immigrants and allow for their natural increase. One of the most important recommendations of the Lothians study is again recommended—that overpill arrangements should be much more generalized over the Central Belt of Scotland and that the system of selection of overpill tenants needs to be improved.
15. Techniques of industrialized building of houses, flexibility of house-letting regulations between authorities and a special contribution from the Scottish Special Housing Association are again recommended.
16. It is anticipated that the Area might grow to 300,000 by the turn of the century. It can contain such a number.
17. The industrial structure of the Area is at present a mixture of expanding and less fortunate industries. The expanding industries tend to be capital-intensive and to be more demanding in their future needs for land than for labour.
18. The policy on industrial sites for the Area should allow for an extension of available sites near Grangemouth, but should also provide other sites in other parts of the Area, including a large site in the west of the Area.
19. The proposed growth of the Area will provide a large increase in labour supply. Special attention should be given to training. At the moment, while the Area has unemployment it has not a sufficient reserve of labour to warrant major industrial expansion. This proposed change in the scale of available labour should increase the attraction of the Area for industrial development, especially when it will be accompanied by improved infrastructure, including housing and communications.
20. The key to the whole development of the Area will be its success or failure in attracting new industrial, and to a lesser extent commercial, enterprise. Our studies discuss this issue. Its resolution, however, depends on continued vigour in Government policy on industrial development. We have tried to point the way and to provide for the Area the basis for continued efforts to stimulate development.

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9th September, 1966.

# Historical and Geographical Background to the Survey

A. C. HULLEY

2.1. The Grangemouth/Falkirk Survey Area covers an area of about 82 sq. miles lying along the southern shore of the River Forth on the eastern side of Central Scotland. Falkirk, in the centre of the Area, is 23 miles by road from Glasgow and 26 miles from Edinburgh.

2.2. Table 2.1 and Diagram 2.1 summarise the administrative units of the Survey Area. The boundary of the Survey Area has been drawn to include all of the urban-industrial "belt" from Denny and Dunipace in the west, through Falkirk and Grangemouth, to Bo'ness in the east. Thus, the Area comprises not only the "growth area" as defined in the Government White Paper on Central Scotland (see Location Diagram), but also a westward extension to include the burgh of Denny and Dunipace. The administrative areas which most closely correspond to the above region are parishes, and the Survey Area, unlike the "growth area", includes the whole of the parishes of Denny, Dunipace and Falkirk. This definition of the Survey Area means that some other administrative units have been fragmented by the boundary (Table 2.2). Part of Stirlingshire Central No. 2 District of County, with very little population, is excluded. The southern part of Falkirk Employment Exchange Area, again mainly hill land with few people, but with several villages such as Slammanan and Avonbridge, is also excluded. About half of Bo'ness Employment Exchange Area, comprising coastal lowland with some scattered farms, and including the Burgh of South Queensferry, lies outwith the Survey Area.

2.3. The Survey Area, as so defined, is a fairly good approximation to the middle-lower watershed of the River Carron. It has a high degree of physical unity, comprising the flat carselands of the River Forth and rising to an altitude of more than 250 ft. only in the extreme south, where it reaches 600 ft., and in the area west of Denny where it reaches a maximum of 1,170 ft. The shore of the Forth, forming the eastern boundary of the Area, is characterised by extensive mud flats which have been partially reclaimed and utilised, as in the Grangemouth docks area.

2.4. When drained, the carselands provide excellent land which is intensively farmed for crops—wheat, barley, potatoes and sugar beet—and for livestock. There are also many small

the south of Falkirk, on the hills skirting the rough grazing land of the Slammanan Plateau. However, poor drainage and subsidence from old mine workings cause difficulties for cultivation on some parts of the lowland, and near the River Forth the danger of subsidence of the unconsolidated "bedrock" presents foundation problems for buildings, thus limiting the density and type of industrial and urban development which may readily be located there.

2.5. The climate of the Area is fairly warm and dry, and extremes in temperature are less common than usual in eastern Scotland. Rainfall averages 57 inches per annum at Falkirk and prevailing winds are from a westerly and south-westerly direction.

2.6. Although farming is carried on, the character of the Area is urban and industrial rather than rural. With the need for new sites for industry and housing, urban development is encroaching rapidly on agricultural land and on the open spaces within the burghs.

2.7. The change from agricultural to industrial predominance arose largely as a result of the exploitation of the natural resources of the Area, especially coal and iron stone, with the onset of the Industrial Revolution. The position of the Area was also of great significance—striding two of the major routeways of Scotland and with the sea route to Europe and beyond. Indeed, in the interwar period when local resources had become almost exhausted, the accessibility of the Area—especially via the port of Grangemouth—became its major advantage. Bulk product and port-orientated industries at Grangemouth thrived, especially after World War II, in an expansion in the Area which matched, and largely offset, the decline in demand for many of the products which had hitherto formed the basis for industry.

2.8. Prosperity in the Area today is exemplified by Grangemouth, with its modern and expanding oil and chemicals industrial complex on the partially reclaimed mud flats of the Forth, its growing importance as a port, and its increasing attraction for industrialists and workers. But the changing pattern of industrial development in the Area has been uneven, and areas which previously depended largely on metal working and mining now have problems of unemployment and migration of population. Also, in the older parts of the towns, and in the





TABLE 2.1  
Administrative units of Survey Area

Parishes (acres)	Burghs (acres)	Landward Areas (acres)	Employment Exchange Areas
Albion . . . . . 5,574	Falkirk L.B. . . . . 4,226	Stirling County:	Falkirk (part of)
Bathness and Carriden . . . . . 6,028	Glasgow S.B. . . . . 2,434	E. No. 1 . . . . . 11,595	Glasgow
Denny . . . . . 8,253	Denny and Dunipace S.B. . . . . 807	E. No. 2 . . . . . 9,585	Landward Area
Dunipace . . . . . 5,532	Bo'ness S.B. . . . . 671	(part) G. No. 2 . . . . . 17,852	Bo'ness (part of)
Falkirk . . . . . 13,132		W. Lothian County:	
Glasgow . . . . . 8,170		Bo'ness . . . . . 5,367	W. Lothian
Larbert . . . . . 3,926			Landward Area
<b>52,675</b>	<b>8,332</b>	<b>66,140</b>	

Source: Census 1961, Scotland, Mid-1961, p. 10.

Sources: Census 1961, Scotland, Vol. 1, parts 31 and 33, Tables 3A and 3B  
Census 1951, Scotland, Vol. 2, parts 31 and 33, Table 1  
Ministry of Labour

TABLE 2.2  
Administrative units fragmented by Survey Area boundary

	1961 Population within Survey Area	1961 Population of part outside Survey Area
(1) Stirling County . . . .	110,124	84,746
(2) West Lothian County . .	14,207	70,561
(3) District of County: Stirling Central No. 2 . .	12,681	1,725
(4) Employment Exchange Area: Falkirk . . . . .	74,191	7,718
(5) Employment Exchange Area: Bo'ness . . . . .	14,207	5,002
		(of which 2,308 is in South Queensferry)

*Source: Census 1961, Scotland, Vol. 1, parts 31 and 33, Table 14.*



mining villages, there are the problems of decaying and an inadequate environment. Before the present scene can be fully understood and an assessment made of the Area's potential as a "growth area", the historical background must be looked at in greater detail.

## II

### Growth of Population and Industry

2.9. An analysis of the parish figures (including burghs) in Table 2.3 shows that in general the main period of population growth was at the end of the 19th century and at the beginning of the 20th century, with a minor peak between 1830-1850. During the 20th century, population in the Area as a whole has been growing by 5,000-7,000 per decade since 1921, representing a greater increase per decade than in the period up to 1870, but a much lower increase in absolute numbers than in the 1870-1911 period. This trend, and the regional variations within the Survey Area, reflect to a considerable extent the periods of economic prosperity and decline.

2.10. Urban development in the Survey Area originated mainly in the late 18th century with the impetus given by the agricultural and industrial revolutions. Falkirk, dating from pre-Roman times, has always been the "centre" of the Area and its most important settlement. It became a Burgh of Barony in 1600, a Burgh of Regality in 1646, and gained corporation status in 1833. By 1770 the pattern had been set for the development of Falkirk as a major commercial centre as the town had become the greatest cattle market in Scotland. But most of the character of Falkirk today is derived from its industrial and population growth during and since the late 18th century. Metal manufacturing—still the predominant industry—developed due to the abundance of local raw materials. Coal from the extensive "exposed" and "concealed" carboniferous limestone coalfields of the Area, the local, and subsequently easily-imported iron ore, the local moulding sand, and the water transport of the Forth and Clyde Canal all contributed to the location along the canal banks, of an extensive iron founding industry which started with the Carron Iron Works in 1760. It continued to develop throughout the 19th century with Calender Abbots (1804), Falkirk Iron Co. (1810), Cockburns (1864), and Forth & Clyde & Sunnyside (1870). Increases in population in Falkirk were especially large in the last three decades of the 19th century, culminating in an addition of 11,400 to the population total between 1891 and 1901, during which time the burgh was extended (Table 2.4).

2.11. Industrial expansion continued into the 20th century, with some specialization in light castings, mainly for domestic use, but began to decline after the 1920s. However, between 1921 and 1931 there was a substantial population increase of over 3,000. In 1944 an aluminium rolling mill was established in the town, ap-

parently to utilize the tradition of skilled metal working, and this is now one of the major plants of its type in Britain, employing over 2,000 people. There is still an extraordinary dependence in Falkirk on metal manufacture (S.J.C. Order V), which employs 20 per cent of the insured population of Falkirk. In Sirlinshire there were more men employed in engineering and allied trades than in any other individual occupation—2,170 of these 8,360 men were employed in Falkirk (and 1,100 in Grangemouth). Demand for products has been steadily decreasing, however, and between 1951 and 1961 there was a fall of about 2,500 in the numbers employed in the light castings trade. As a result the larger firms, especially the Carron Company, are now turning to greater diversification. But despite this decline in the staple industry, unemployment in the Area as a whole has not risen markedly, because of the industrial expansion of Grangemouth. An analysis of the travel-to-work pattern showed that an increased amount of commuting to Grangemouth and other areas had developed recently. Between 1951 and 1961 Falkirk's population rose by only 500.

2.12. In Grangemouth the industrial problem is not one of declining employment but of near-shortage of land in the lough to house the increased population associated with the expanding industrial and port area. Early settlement avoided the low, easily flooded creeks at the mouth of the Grange and Carron burns, and shipping too avoided the muddy tidal flats, utilizing instead, the River Carron as far as Carronside, where the iron works were founded on the firmer ground. Although the River Carron was gradually straightened from its meandering course, it was not until the Forth and Clyde Canal was completed in 1790 that the site was sufficiently improved to enable a town and port to develop at the mouth of the Grange. In 1872 Grangemouth was created a burgh, and throughout the 19th century it was the increasing importance of the port that led to steady expansion of the town. From the 1870s the population increased by about 2,000 per decade, until the years of the First World War. The first wet dock was opened at Grangemouth in 1843, but with the continued increase in volume of seaborne trade these facilities soon became inadequate. Another basin was added and new docks built—Carron Docks in 1882 and Grange Dock in 1906. To satisfy the demand for new residential areas near to the docks, railway, and commercial centre, part of the marshy land at the edge of the mud flats was drained and houses were built on it. But after the First World War Grangemouth received a fresh impetus. The town was chosen as the new site for Scottish Dyes Ltd., due to the availability of water and labour supplies and good road, rail and sea communications. In 1924 Scottish Oil Ltd. opened a refinery in Grangemouth. These two companies thus formed the basis for Grangemouth's industrial expansion. With the rapid growth that followed, the town expanded, and once more new docks were built to accommodate increasing traffic. Although Grangemouth still cannot provide berths for large

TABLE 2.3  
Population changes of Parishes (including Burghs): 1801-1967

	1801 popn.	1801-11	1811-21	1821-31	1831-41	1841-51	1851-61	1861-71	1871-81	1881-91	1891-1901	1901-11	1911-21	1921-31	1931-41	1951-61	1961 popn.
All Parishes	23,905	+1,190	+3,666	+3,150	+3,380	+4,440	+3,379	+1,250	+11,550	+10,670	+22,450	+12,020	-1,500	-6,700	+10,070	+6,610	124,331
Pollock	6,658	+1,000	+1,610	+2,080	+2,080	+1,020	+590	+1,230	+2,190	+3,290	+5,200	+5,800	+310	+2,680	+2,220	-1,150	96,217
Glasgow	2,719	-120	+430	-1,250	-820	+510	-820	-1,30	-1,460	-1,260	-4,380	+2,010	-700	-1,980	+4,330	+3,010	29,112
Leith	3,319	+370	-350	+740	+160	-200	+300	+230	+1,670	+2,100	+3,250	+1,200	-600	+610	-2,700	+1,800	17,687
Burrows and Carrington	4,303	-230	+600	-580	-520	+3,860	+600	-730	+1,290	+770	+2,630	+2,560	-640	+700	+40	+70	14,007
Denary	2,603	+620	+440	+1,670	+160	-160	+230	+10	+740	+530	+1,400	+900	+70	+300	+1,200	+1,660	13,110
Donipace	943	+150	+70	+110	+300	-110	-110	-	-140	-150	+30	-110	-120	-50	-250	+1,150	2,572
Airth	1,825	-150	+200	-80	-330	-180	-130	+200	-30	-60	-40	+160	+200	+430	-10	-310	1,726

Source: Census 1961, Scotland, Vol. 1, parts 21 and 33, Table 4B

TABLE 2.4  
Population changes of Burghs: 1841-1967

	1841 popn.	1841-51	1851-61	1861-71	1871-81	1881-91	1891-1901	1901-11	1911-21	1921-31	1931-41	1951-61	1961 popn.
All Burghs	13,368	+1,970	+2,320	+1,690	+7,100	+6,590	+18,440	+7,020	-1,200	+5,650	+5,190	-3,190	74,056
Pollock	8,270	+540	+200	+500	+5,020	+4,140	+11,270	+5,120	-270	+3,260	-970	-310	80,644
Glasgow	1,406	-410	-820	-570	+1,390	+1,790	+2,630	+1,430	-500	+2,060	+3,030	+1,630	16,857
Burrows	1,700	+660	+1,250	+360	+1,030	+380	+3,440	+1,500	-700	-20	-120	-250	10,195
Denary and Donipace	1,881	+570	+960	+190	+660	+400	+1,000	+10	-30	+380	+1,360	+1,600	7,760

Source: Census 1961, Scotland, Vol. 1, parts 21 and 33, Table 4A

tankers, since 1954 oil has been pumped through a 57-mile long pipe from Firsart on Loch Long to what is now a major petro-chemical installation. The refinery itself extends over much of the mud flats and there are a number of other factories in close proximity which process the petroleum by-products—British Hydrocarbon Chemicals, Forth Chemicals, Grange Chemicals, and Gomer I.S.R. The I.C.I. chemical industry, producing dyes, pharmaceuticals, paints and plastics, has also expanded considerably. Grangemouth is the chief Scottish timber port, and the town has a large number of timber yards and saw mills which prepare the wood for dispatch to all parts of Scotland.

2.13. The relatively small population of Grangemouth today, considering the expansion and importance of industrial development, is a reflection firstly of the high capital/labour ratio typical of petro-chemicals, and secondly of the large proportion of the workers in Grangemouth who travel from other areas. Inward migration has played a large part in the population increase.

2.14. The continuing prosperity is borne out by the trend of increasing population growth—the increase in 1951-61 was larger in absolute terms (3,000) than in any previous decade. Grangemouth cannot continue to provide large increases in industrial employment for the Area because the petro-chemical industry is becoming more and more capital intensive, and there is also relatively little land left within the Burgh itself. However, it is the best situated of the Scottish East Coast ports to serve Glasgow and the West of Scotland industrial area, as well as most of the industrial area of the Forth Valley, and has recently modernized its facilities.

2.15. To the east of Grangemouth lies the small industrial town of Bo'ness, very much influenced by Grangemouth's progress, but with much less certain economic prospects. Although industrial development began early, several factories have closed recently. From the 12th century onwards coal has been mined in the Bo'ness area and for centuries was exported through the port of Bo'ness. Until the late 18th century salt was manufactured by evaporating the salt pans on the Forth using local coal. As with Falkirk, the industrial revolution accelerated development in the mining industry, timber manufacturing, and iron founding. During the "boom" time, however, and aggravated by the completion of the Forth and Clyde Canal, the function of Bo'ness as a coal exporting and timber and phosphates importing port began to decline. By the early 19th century the new port at Grangemouth rendered that at Bo'ness unnecessary. The closing of the port and subsequent industrial decline are probably the main reasons for the decrease in population at various times between 1800 and 1860. The main peak period for growth was at the turn of the 20th century, when general demand for production of the heavy "staple" industries was at its height. Mining declined in the early 20th century and now only Kinnell Colliery remains, but with its recent expansion the mine has been able to employ most of the miners made redund-

dant elsewhere who wanted continued employment in the Area. However, the influence of Grangemouth has had adverse effects on the growth of population and employment at Bo'ness in respect of other industrial and port functions. Between 1911 and 1951 there was a slight drop in total population, contrasting with the rapid growth of Grangemouth. The slight increase between 1951 and 1961 has been followed by a fairly sharp increase, due to an extension of the burgh which now includes an area of new residential development. The rate of net outflow (.56 per cent per year) of population to other areas between 1951 and 1961 was greater than that of Falkirk (.30 per cent), but this was counteracted by a higher net natural increase (.78 per cent per year).

2.16. In contrast, the Burgh of Denny and Dunipace grew fairly rapidly between 1951 and 1961—at a rate of 1.39 per cent per year—and now has a population of over 7,500. Like Falkirk, the Burgh is a pre-industrial revolution settlement originally located on an important roadway where it crosses the Carron River. Industry at present includes paper mills (using water from the River Carron and raw materials imported through Grangemouth), and iron works (utilising the local natural resources and good communications). Mining in the Denny area has also been important, but the last remaining (anthracite) mine—Herbertshire—closed in 1959. Population in the Burgh expanded throughout the 19th century, especially in the 1850s and 1890s, but remained more or less static in the early years of the 20th century. There has been more rapid growth in recent years (1,000 between 1951 and 1961), which has been accompanied by fresh industrial and housing development.

2.17. While the four burghs together account for only 17 per cent of the land in the Survey Area, they contain about 60 per cent of the total population, the remainder being distributed amongst the non-burghal agricultural and mining communities. Seenhousenair and Lerbort, for instance, occupying a much larger area than Denny and Dunipace, and having a population in 1961 of about 14,000, developed when the cattle trysts were established there in the 18th century, whereas Redding, Westquarter, Shieldhill and California evolved as coal-mining villages. The peak of mining activity was reached in the early 20th century, and since then these communities have become mainly dormitory suburbs.

2.18. Population trends of the landward areas of parishes relate not only to the fortunes of coal mining and other industries there, but also to the growth of industry and commerce in the burghs, to which workers would be attracted. Decreases in landward population often occurred during periods of population growth in the burghs (Table 2.5).

### III

#### Conclusion

2.19. The Survey Area developed first as an agricultural and marketing region and then as

TABLE 2.5  
Population changes of Parishes (excluding Bingham): 1841-1967

	1841 popn.	1841-51	1851-61	1861-71	1871-81	1881-91	1891-1901	1901-11	1911-21	1921-31	1931-41	1961 popn.
All Parishes	22,637	+1,960	-540	-320	+4,160	+4,080	+4,010	+4,090	—	+1,050	+5,080	46,475
Folkestone	7,412	+280	+310	+310	+5,570	+1,450	-6,070	+1,510	+610	-580	+1,250	8,473
Canterbury	2,945	+280	+280	-40	-1,130	+30	+6,350	+180	-260	-190	+860	10,255
Be'hem and Can'ton	1,785	+2,500	-650	-1,060	+260	+150	-810	+1,000	+60	+770	+130	4,012
Denby and Dunstons	4,615	-840	-460	-180	+420	+420	+1,230	+780	-70	-130	+200	7,822
Leather	4,404	+200	+350	+280	+1,070	+2,000	+3,350	+1,500	-600	+660	+2,760	17,067
Arth	1,406	-180	-130	+300	-30	-40	-40	+160	+300	+450	-10	1,726

Source: Census 1967, Scotland, Vol. 1, parts 31 and 35, Tables 6A and 6B

an eastward extension of the Central Scotland coal mining and industrial belt. Many factors have contributed to the growth of industry and population. The situation of the Area in Central Scotland has given it importance continuously from an early date and, with the onset of the industrial revolution, the local mineral resources and ease of access to other parts of Scotland and beyond greatly aided its economic growth. But the consequent high degree of industrial specialisation has not been wholly favourable. The settlements, including Falkirk and Bo'ness, dependent on mining or on a limited range of products for which the demand has declined in recent years, now have to face the problems of unemployment and, ultimately, of population decline. As a result, the economic "centre of gravity" of the Area has shifted eastwards from Falkirk to the Grangemouth port and petrochemicals area. Although in 1961 Falkirk had the larger population (30.6 per cent of the total), Grangemouth had the greatest increase, and rate of increase over the 1931-61 period due to considerable natural growth and net immigration. In the same period the populations of Bo'ness and Falkirk remained relatively static.

2.20. In the older settlements there are other problems such as overcrowded and substandard housing, typical of early industrial towns in

Britain. Many houses in the Area lack the basic amenities—exclusive use of hot and cold water taps, fixed bath and water closet. In 1961 Bo'ness was worst with respect to the percentage of housing below standard, and the percentage of such housing in Falkirk was well above the average for Stirling County. Slum clearance in the burghs and "renaissance" of old mine settlements is under way and is urgently required if the Area is to house its existing inhabitants adequately and attract new population.

2.21. Modernization of the communications pattern is also beginning and will be a major necessity in the next 20 years if the proposed expansion is to succeed. The commercial centre of Falkirk, with its narrow winding street pattern dating from medieval times, has suffered acute traffic congestion for several years already.

2.22. The Survey Area is thus a fairly compact industrial and urban district with considerable contrasts within it. New buildings, roads, and modern industries, are located beside development typical of 19th-century "coalfield Britain". Despite the problems involved in redevelopment, the Area as a whole has a considerable potential for growth, based mainly on its locational advantages, expanding industrial sector, and capacity for further development.

## Population

A. M. STRANG\*

3.1. The development proposals contained in this Report are based on a total population of just under 230,000 in 1966. In this Chapter it is proposed to show how this figure was derived from projections of the present population of the Survey Area and of the planned immigrant population of 50,000.<sup>†</sup> Section I examines the structure of the present population and its growth in the past. In Section II the development of this population in the future is discussed under various assumptions; the figure of 230,000, however, is based on the set of assumptions giving the most rapid population increase. The planned immigrant population is treated in Section III and the entire population implied by the calculations is discussed in Section IV. Finally, in Section V an indication of the possible geographical distribution of the total population in 1966 is given.

3.2. The base population for this study was the number enumerated in the Survey Area at the 1961 Census, a total of 124,167 people. The population by age, sex and marital status of each complete local authority district was obtained from the County Census Reports for

Stirling and West Lothian. For Central No. 2 District of Stirling County, which is divided by the Survey Area boundary, similar information was extracted from the special Scale A census tabulations, which enabled the enumeration districts outside the Area to be excluded.

*Past trends*

3.3. Table 3.1 shows the distribution of the total population among the burghs and landward districts in 1951 and 1961, in both absolute and percentage terms. Where possible, the 1931 Census figure is included, but we have been concerned primarily with growth between the two later dates. The percentage change between 1951 and 1961 is shown in the last column. The total population of the Area increased in this period by 6,628, or 5.4 per cent, which represents an average growth of 0.52 per cent per year.

\* I would like to thank Miss R. M. Scott, Assistant in the Department of Social and Economic Research, and Dr. T. H. Hollingsworth, Research Fellow in Demography, University of Glasgow, for their many helpful suggestions during the preparation of this Chapter.

† The origin of this figure is discussed by Professor Robertson in Chapter 1, para. 1.21.

TABLE 3.1  
*Geographical distribution of Survey Area population*

	1951	1951		1961		% change 1951-1961
	No.	No.	% of Survey Area	No.	% of Survey Area	
Falkirk L.B.	36,566	37,185	31.9	38,044	30.8	1.4
Glasgow S.B.	12,282	15,452	18.1	18,287	15.2	23.2
Denny and Dunipace S.B.	5,541	6,354	5.7	7,760	6.2	14.9
Bo'ness S.B.*	10,212	9,593	8.5	10,195	8.2	2.5
<i>Stirling County:</i>						
Eastern No. 1 D.C.	16,611	19,225	16.4	19,824	16.0	3.2
Eastern No. 2 D.C.†	10,695	12,831	10.8	13,494	10.9	4.9
Central No. 2 D.C. (part)	N/A	11,633	9.9	12,681	9.7	3.2
<i>West Lothian County:</i>						
Bo'ness D.C.*	2,888	4,386	3.6	4,012	3.2	-4.2
<b>TOTAL</b>	N/A	117,589	100.0	124,167	100.0	5.6

Source: *Census of Population, Scotland, 1951 and 1961*, Vol. 1, parts 31 and 33

\* Boundary of Bo'ness S.B. extended in 1952 taking in 18 people formerly in Bo'ness D.C.

† Change of boundary of Eastern No. 2 D.C. between 1951 and 1961 altered the total population by only 1 person.

This is a modest enough rate of growth, but it is evident that the expansion is not evenly spread over the Area. Over half of the interannual increase took place in Grangemouth; the burghs of Denny and Dunipace also grew considerably; but although only one District of County showed an actual decline in numbers, the figures for the rest of the Area suggested some emigration during the period. The one Large Burgh, Falkirk, increased very little over the ten years, and the overall growth of the Area, despite the large percentage increases in Grangemouth and Denny, was still below the average natural increase of Stirling County between 1951 and 1961, estimated at 7.1 per cent of the 1951 population.<sup>(1)</sup> It must be concluded that there have been considerable population movements in the Area, and although it is possible that some of the growth, in Grangemouth for instance, may be due to immigration from other parts of the Area, it would appear that the region as a whole has not retained the whole of its natural increase.

3.4. These apparent trends seem to be fairly well established, for the same growth pattern is evident in the period 1931 to 1951. Between these dates Falkirk grew by 1,000 people, which is consistent with its increase of 560 in the next ten years, while Grangemouth and Denny were already growing rapidly in the earlier period, the rate for Grangemouth having accelerated in recent years. In Denny a decline in numbers was replaced by an increase between 1951 and 1961, but in the husband area as a whole, fairly steady increases appear to have fallen off in the later years.

#### *Migration and natural increase*

3.5. These figures of interannual change reflect, over a specified period, the results of all three elements in population development, births, deaths and migration. It is possible to calculate the natural increase, that is, the balance of births over deaths, of the same population in the same period, giving an estimate of the change which would have occurred had there been no migration, and a comparison between this hypothetical population and that actually enumerated at the Census shows the effect that migration has had, not only on the total numbers but also on the age structure.<sup>(2)</sup> Since the necessary information on births and deaths in each year is not available for individual Districts of County, the calculation could not be made for the whole Survey Area, but was carried out for the two largest burghs, Falkirk and Grangemouth.

3.6. The total population by five-year age groups in each burgh was obtained from the 1951 Census, and within each age group it was assumed that the numbers at each year of age were distributed in the same proportions as the population of the County of Stirling, for which the Census gave a distribution by single years of age. After one year, during which the deaths at each age were deducted and the year's births<sup>(3)</sup> added, the proportions assumed to be at the eldest age in each group were moved into the next age range, where they became the

people at the youngest age in that group, during the next year. The age distribution was adjusted in this way from year to year and the change in the population due to births and deaths was assessed.<sup>(4)</sup> As the date of the Census is in April each year, while the Registrar-General's Reports relate to calendar years, only the numbers of births and deaths occurring after the 1951 Census and before the 1961 Census were required; these were estimated from the monthly distributions given in the Registrar-General's Reports for those years, in order to make the two populations comparable.

3.7. The hypothetical population which would have resulted in 1961 had there been neither immigration nor emigration was compared with that enumerated in each burgh at the later Census, and the differences assumed to be due to migration. Table 3.2 shows the results of this exercise; a plus sign indicates that the Census population was larger than the estimate, implying that the inflow from immigration had exceeded any outflow, while a minus sign shows the reverse and thus a loss through emigration. These figures do not represent the ages of the migrants at the time when they moved into or out of the area, since this movement could have occurred at any time in the ten-year period and the migrants might then have been in different age groups. For instance, in Grangemouth the group aged 25-34 in 1961 shows a gain of 580 people, but they could have arrived at age 16 in 1952, or at age 20 in 1955, or at age 35 in 1960. The figures, therefore, show how each age group has been enlarged or depleted by past migration and not the age structure of people moving.

3.8. In Grangemouth the pattern appears to be relatively simple; natural increase is large (11.2 per cent of the 1951 population) but accounts for only half of the total growth over the period. While each age group except for 65-74 shows growth through migration, much of this is concentrated in the younger age groups; 35 per cent of the estimated immigration is in the group aged 25-34, and there are also substantial gains in the other groups of working age.

3.9. The situation in Falkirk seems more complex, with large net losses in the age groups 15-44 and 0-9 and considerable increases at ages over 45, with the exception of the group aged 65-74. The net emigration figure of 1,158 people over the period is simply the balance of emigrants over immigrants; the number of people moving both into and out of Falkirk, according to this estimate, is 3,007, and this is a

<sup>(1)</sup> *Census 1961, Scotland*, Vol. 1, part 31, p.11, para. 2.

<sup>(2)</sup> For a discussion of this method see Chapter 3 by R. M. Swift in *The Scottish Regional Survey and Plan, Volume One, "Economic and Social Aspects"*, also Technical Appendix A for a detailed description.

<sup>(3)</sup> The numbers of births and deaths at each age in selected age groups were taken from the *Annual Report of the Registrar-General for Scotland, 1961-1961*.

<sup>(4)</sup> To be wholly accurate this procedure should exclude births and deaths among immigrants and include births and deaths among original inhabitants who leave the area, but in practice this is impossible and would probably make no significant difference to the results.

TABLE 3.2  
*Estimated Effects of Natural Increase and Gains and Losses  
through Migration, 1951-1961*

Age	Glasgow		Falkirk	
	Natural Increase (1)	Net Migration	Natural Increase (1)	Net Migration
0-4	+406	+69	+153	-81
5-9	+317	+97	+372	-395
10-14	+269	+398	+258	+79
15-24	+217	+37	+208	-308
25-34	+91	+597	+127	-445
35-44	-118	+267	-161	-638
45-54	+71	+215	-22	+56
55-64	+382	+245	+587	+571
65-74	+104	-71	+59	-113
75 and over	+35	+59	+66	+236
Total	+1,712	+1,703	+1,466	-1,135
Annual Change 1951-61	+1,425		+529	

(1) The figures indicate the extent to which the particular age group in 1961 is greater than (+) or smaller than (-) the equivalent age group in 1951, as shown by the estimated growth through natural increase.

measure of net movement only. From these calculations, Glasgow emerges as a community growing rapidly through both natural increase and immigration, while in contrast, Falkirk, although gaining population at some ages, is losing, on balance, most of its natural increase, especially in the younger age groups.

#### *Present population structure*

3.10. The growth patterns discussed above naturally affect the age structure of the population and, as Table 3.3 shows, there are considerable differences among the various communities, although the Survey Area as a whole does not differ markedly from the Scottish age structure. Falkirk has an older population than either the Survey Area or Scotland, but both Glasgow and Denny and Dunipace have high proportions of younger people and smaller proportions in the age groups over 50.

Diagram 3.1 illustrates the age structures of the total Survey Area and of Scotland in greater detail than the Table. In the Survey Area there is a more balanced sex ratio, 49.6 per cent males and 50.4 per cent females, compared with 47.9 per cent males and 52.1 per cent females in the

whole country; consequently, the Survey Area has slightly higher proportions of males at most ages and smaller proportions of females, especially over the age of 60. On the whole, however, the distributions are very similar and the characteristics of the individual burghs offset each other when the populations are aggregated.

3.11. This effect is also evident when the birth and death rates for the Survey Area and Scotland are compared. The average birth rates, standardized for age and sex,<sup>(1)</sup> over the years 1960-1962, for the burghs and total county landward districts, were weighted together in the proportions that each formed of the Area's population in 1961. This gives an average birth rate for the Area of 18.5 per 1,000 population, compared with the Scottish average of 19.7 per 1,000 over the same period. In general, therefore, the Area had a birth rate lower than that of the whole country, but Falkirk, with an average of 19.4 per 1,000, was very close to the national rate and Glasgow, at 20.4 per 1,000, was slightly above it.

(1) Published in the *Annual Reports of the Registrar-General for Scotland, 1960-1962*.

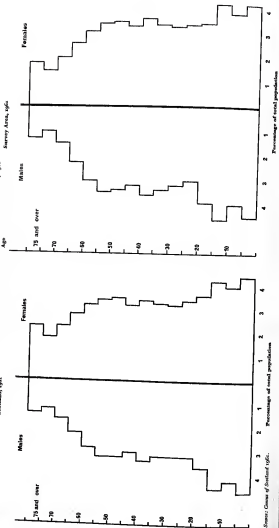
TABLE 3.3  
*Age distribution of the Survey Area and Scotland, 1961*

Age	per cent						
	Scotland	Total Survey Area	Falkirk	Glasgow	Denny and Dunipace	Burns	Landward Areas
0-4	9.1	8.7	8.5	10.1	9.7	9.0	8.2
5-9	24.0	23.0	21.4	24.3	25.8	23.4	25.0
10-14	30.7	28.4	26.0	32.7	30.6	28.5	29.8
15-24	17.7	17.0	16.7	16.1	15.9	16.4	17.5
25-34	10.6	9.1	10.2	6.7	6.0	9.8	9.2
35-44	10.0	10.0	10.0	10.0	10.0	10.0	10.0
45-54	10.0	10.0	10.0	10.0	10.0	10.0	10.0
55-64	10.0	10.0	10.0	10.0	10.0	10.0	10.0
65 and over	10.0	10.0	10.0	10.0	10.0	10.0	10.0
All ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Census of Population, Scotland, 1961



AGE STRUCTURE OF THE SURVEY AREA AND SCOTLAND, 1961



Source: Census of Scotland 1961.

3.12. A similar calculation applied to the standardised death rates over the same years produced an average for the Survey Area of 12.3 deaths per 1,000 population, while the Scottish rate was 12.1 per 1,000. In this case, Falkirk (12.5 per 1,000) and Denny (13.8) had rates above the national average, but those of Grangemouth (11.8) and Bo'ness (11.1) were below.

3.13. In 1961, therefore, the Area contained some points of rapid expansion, notably Grangemouth and Denny, but these are relatively small communities, comprising less than 20 per cent of the total Survey Area population, and their high growth rates are overshadowed by the much larger sections of the Area, especially Falkirk, where expansion is on the whole very slow.

TABLE 3.4  
*Estimated population of the Survey Area, 1965*

	Population	Change 1961-65 %	% of Survey Area
Falkirk . . . . .	37,859	-0.2	30.0
Grangemouth* . . . . .	20,640	+8.5	16.5
Denny and Darnley . . . . .	8,113	+4.5	6.4
Bo'ness . . . . .	13,388	-0.2	11.2
West Lothian Landward } Stirling County Landward* . . . . .	500 45,600	+1.1	36.2
TOTAL . . . . .	126,692	+1.0	100.0

*Source: Annual Estimate of the Population of Scotland, 1963*

\* Grangemouth's boundary extended in 1964, affecting Eastern No. 2 District of County.

† Boundary of Bo'ness S.B. extended in 1963, taking in a large part of Bo'ness District of County.

## II

### The Future of the Population before Planned Immigration

3.15. The total Census population in 1961 included a number of people who were not resident in private households, such as the patients and staff of institutions and the crews of ships in port. The Scale A Census tables, however, provided the age and sex breakdown of all "non-private" population in each enumeration district, making it possible to deduct these people from the total enumerated to give the number living in private households. This figure of 120,017 was used as the base population for all the calculations. The proposed immigrant population was treated separately and will be discussed in Section III of this Chapter.

3.16. Before embarking on a discussion of the techniques and results, it must be emphasised that projections cannot be regarded as forecasts of the size and structure of a population in the future; the most they can do is indicate how the population would develop under specific and rigidly defined conditions. It is most unlikely that these conditions will actually be fulfilled in the way assumed here, and deviations from the projections must be expected, especially in the

### Developments since 1961

3.14. An indication of developments since 1961 is provided by the Registrar General's Annual Estimate of the Scottish population for 1965, which gives the total population of each burgh and District of County as at 30th June. The problem of excluding part of Central No. 2 District of Stirlingshire was resolved by deducting from the 1965 figure the same proportion of its population as in 1961 was outside the Survey Area. Table 3.4 gives these estimated total populations for each part of the Area with the percentage change since 1961. The Table shows an unchanged growth pattern. Grangemouth and Denny continued to expand,<sup>11</sup> while the rest of the Area remained virtually static. The increase in numbers over the whole Area was 2,525, and 70.6 per cent of this growth took place in Grangemouth.

longer term. It might possibly be argued that the interest of the exercise is much reduced by all the limitations of the results. But in order to plan for the future needs of a region, it is necessary to have some idea of the demands which might be made, not only in terms of the total investment required, but also of the level of each type of investment. For this, some knowledge of the structure of the population, as well as its size, is essential. Our task has therefore been to examine the alternative assumptions that could have been made and to decide which combination of these would provide the most useful information for our purpose. For two main reasons, we considered that our investigations should be concentrated on the maximum expansion likely to take place in the Survey Area. First, it seemed reasonable to suppose that, once the growth area policy began to be effective, the present trends of emigration and slow population increase, evident in most districts, would be halted and that growth in the future would be much more rapid. Also, it was necessary to establish whether the Area could accommodate

<sup>11</sup> We do not know how many people were affected by Grangemouth's change of boundary, but the number is unlikely to be large, since the 1964 estimate for the burgh was 20,425.

a population growing at this faster rate, together with an immigrant population which was initially set at 50,000, both for test purposes and to reflect the somewhat ambiguous figure in the White Paper on the development and growth of Central Scotland,<sup>(1)</sup> from which this survey originated. Moreover, this population of 50,000 would increase rapidly once established in the Area. In the event, the practicability of the figure of 50,000 immigrants was confirmed by the studies undertaken by the two Universities and it was used as the input of immigrants in our calculations.

3.17. Before proceeding with calculations based on these assumptions of faster growth, a preliminary projection of the present population was made. This projection was designed to demonstrate future developments should the 1961 levels of fertility and mortality remain unchanged and to provide a standard with which the much faster growth of the second projection could be compared. Owing to the lack of information on population movements and also because it was supposed that the net emigration apparent at present would cease, no allowance was made for migration in the two main projections, although a modification showing the effects of some migration was prepared and will be discussed later in this Section.

#### Methods<sup>(2)</sup>

3.18. The population, in quinquennial age groups, was projected through five-year intervals beginning at the 1961 Census. For ages between five and 84, annual death rates were estimated for each sex and age group, for the average age of the group at the mid point of a five-year projection period. These rates were converted into survival ratios which estimated how many of a specified group would, at the level of mortality assumed, survive five years to form the next age group in the next period. The group aged 85 and over contains not only the survivors of those aged 80-84 in the previous quinquennium, but also the survivors of the group already aged over 85 in the preceding period and aged over 90 in the current period. To form this group, therefore, the numbers dying in each year at ages over 85 were estimated and deducted from the original total; the remainder were then added to the survivors of the 80-84 age group.

3.19. Future births were estimated by applying annual age specific fertility rates to the numbers of women in each child-bearing age group. During each projection period, the annual complement of births was assumed to be the average of births occurring among women aged 15-49 at the beginning of the period and among women at these ages five years later, giving equal numbers of births in each year of the period. 51.36 per cent of all births were assumed to be males. But the chances of surviving to the end of the projection period in which they were born are not equal for all these children, since death rates are high in the first year of life and fall rapidly thereafter, and since the children assumed to be born in the first year of the period would have to survive, on average, 4½ years to reach the end, while those born in

the last year would have to survive an average of only six months. As a single five-year survival factor would not, therefore, have been appropriate for this age group, the death rates at each age were converted into survival factors for each year and half-year of life, and the births attributed to the first year of the period were reduced by the number of deaths estimated for 4½ years, the second year's births were reduced by 1½ years' mortality, and so on. The total number of these survivors formed the age group 0-4 in the current projection period, to whom a group survival ratio was applied in the usual way to estimate the numbers becoming 5-9 five years later. These methods were employed in all the calculations; variations in the assumptions will be discussed separately for each projection.

#### PROJECTION I

3.20. The basic assumptions of this preliminary projection were that birth and death rates would remain constant at the 1961 levels. As no allowance was made for migration, the estimate produced is of the natural increase of the population under the conditions of the recent past. It is not possible to calculate age specific fertility and mortality rates<sup>(3)</sup> for the Area, since numbers of births and deaths are published<sup>(4)</sup> only for burghs and the total landward area of each county. Therefore, as most of the Area lies in the County of Stirling, it was assumed that its rates would approximate closely to those of the whole County (excluding Stirling Large Burgh).

#### Deaths

3.21. Age specific mortality rates for each sex were calculated by expressing the average number of deaths in each age group over the years 1960, 1961 and 1962 as a proportion of the Census population of the same age. The average of three years' deaths was used to minimize the effects of any abnormally high or low figure in any one year. For ages over 15, the numbers of deaths were published in ten-yearly age ranges, making it necessary to estimate graphically the rates for quinquennial groups required for the projection. The rates calculated for the ten-year groups were plotted on semi-logarithmic graph paper at the central age of each group and a curve was fitted visually. The intervening values at the required ages were then estimated from the curve. At ages under 15, the deaths were published in five-year age groups, but rates calculated from this information related to the average age of the groups at the beginning of a projection period, whereas we needed the rates for the average ages 2½ years later. The same curve was used to estimate these values and also the rates for single years under the age of five. In the case of children aged under one year, the number of deaths was expressed as a proportion

<sup>(1)</sup> *Cens. 2100, 1960.*

<sup>(2)</sup> For a full description of the methods used, see the *Lothian Regional Survey and Plan, op. cit.*, Volume I, Technical Appendix E.

<sup>(3)</sup> Age specific rates are defined here as annual rates for quinquennial age groups, unless otherwise stated.

<sup>(4)</sup> In the *Annual Reports of the Registrar-General for Scotland.*

of the births registered, since the Census enumeration of the population aged 0 is generally considered inaccurate.

3.22. The death rates calculated in this way for the County of Stirling (excluding Stirling Large Burgh), which are given in Table 3.5, were at most ages slightly higher than similar rates for the whole of Scotland over the same period. They were used without alteration throughout this projection.

TABLE 3.5  
Age specific mortality rates: Stirling County,  
average 1960-1962

Rates per 1,000		
Central age of group	Males	Females
5	0.32	0.38
10	0.42	0.42
15	0.64	0.47
20	1.10	0.80
25	1.35	0.94
30	1.50	1.00
35	1.80	1.20
40	3.30	1.90
45	5.50	3.25
50	9.20	6.00
55	14.00	9.40
60	25.00	14.70
65	56.00	23.00
70	59.00	38.10
75	86.00	59.00
80	125.00	95.70
85	205.00	162.00
90	300.00	200.00
0	25.30	16.00
1	2.40	1.40
2	1.20	0.90
3	0.80	0.72
4	0.62	0.63

Source: See text

## Births

3.23. The numbers of births by age of mother are published only for Scotland as a whole, therefore the estimation of age specific fertility rates for one part of the country entails a modification of the national rates rather than calculation from basic data. When the Scottish age specific rates<sup>(1)</sup> for 1960, 1961 and 1962 were applied to the female population of Stirling County, the predicted numbers of births were higher for each year than the numbers actually recorded in the County, indicating that the local birth rate was lower than the national average. The Scottish rates were accordingly reduced in order to yield the average number of births which occurred in the County over the three years. These assumed rates at each age (shown in Table 3.6) bore the same ratio to one another as the national rates; i.e., the pattern of fertility in the Area was assumed to conform to that in Scotland, but at a lower level at each age. Independent estimates of fertility among married and unmarried women were not made for this projection, nor was there any provision for a change in the proportions of women who were

married. The total number of births estimated for each age group was simply expressed as a proportion of all women at that age, irrespective of their marital status.

TABLE 3.6  
Estimated age specific fertility rates for all  
women: Stirling County, 1960-1962

Rates per 1,000

Age	Rate
15-19	32.55
20-24	171.05
25-29	179.35
30-34	100.01
35-39	54.05
40-44	15.23
45-49	0.87

Source: See text

3.24. These fertility rates, which were used all through the projection, probably underestimate the numbers of future births. Whether or not fertility in the Area remains below that in Scotland, it is nevertheless unlikely to remain at the level assumed here. It is, unfortunately, difficult to judge if the rates have changed in the last few years, for the standardized birth rates published by the Registrar-General were, for 1960 and 1961, based on the estimated age structure of the population, whereas later figures were based on the more accurate data provided by the Census, and therefore any alteration in the birth rates may have been obscured by this adjustment. But, more positively, it is a fact that, in the younger age groups, the proportions married are already higher than in the past and, by the time these younger women reach the ages at which fertility rates are highest, the proportions of them who are married will certainly be higher than those implicit in the rates. Therefore, since legitimate fertility is very much higher at all ages than that of unmarried women, these rates, which reflect the proportions who were married in 1961, fail to allow for an inevitable increase in the numbers of births which would occur as the proportions married rose, even if the level of fertility were to remain unchanged.

## PROJECTION II

3.25. The second projection of the existing population, in which it is assumed that there will be changes in both fertility and mortality rates, is the basis of our estimate of the future Survey Area population. Allowance is made, not only for rises in the level of fertility, but also for alterations in the proportion of women in the population who are married, a factor which has a considerable effect on the numbers of births. To form the entire population of the Survey Area in the future, the results of Projection II will be combined with the planned immigrant population, to be discussed in Section

<sup>(1)</sup> The total number of births during one year to women in a particular age group, per 1,000 women in that group in the population.

III, but in this projection it is again assumed that there will be no net migration in the sense of unplanned movements among the population already resident in the Area.

3.25. It was assumed that present trends in fertility, mortality and marriage rates would continue in the future. Since death rates have in general been declining steadily for a long period, and especially since the war, it is reasonable to suppose that this well-established trend will continue, except perhaps at the oldest ages, and therefore the difficulties of estimating rates for the future are confined to determining the amount and timing of the decreases. Also, since death rates at most ages are already low, it would require very substantial changes to make any significant difference to the number of survivors.

3.27. The estimation of future births presents a much more complex problem, for in this case there is no justification for believing that past experience is any guide to the future. The number of births at any date is governed by two factors, first, the number of women in the population who are of child-bearing age (and especially the proportion of them who are married) and, second, the level of fertility prevailing at the time. The projection process gives the actual numbers of women in each age group, but the proportions married and the level of fertility both have to be estimated separately. In recent years marriage rates have been rising, especially at the younger ages, resulting in higher proportions married at each age than in the past; and there seems no reason why the trend towards younger marriage should not continue. It has therefore been assumed that marriage rates will rise steadily until 1978. This in itself would tend to produce larger numbers of births but, in addition, fertility rates themselves, both legitimate and illegitimate,<sup>(1)</sup> have been rising. It is too early to determine whether the increase in legitimate fertility is absolute in the sense that ultimately the completed family will be larger than in the past, or whether the observed rise is wholly the result of larger proportions married at the younger ages. If the latter is the correct interpretation, the consequence would be a decline in the future in fertility rates at the older ages. The assumption made here is that legitimate fertility for ages up to 39 will continue to increase until 1978 and thereafter remain constant, and for the older ages the 1961 rates will remain steady throughout the period. In fact, this assumption does imply some increase in the size of the completed family, since no allowance was made for a decline at the older ages. The recent trend in illegitimate fertility has also been upwards, but this can be attributed partly to the fact that as the proportions of unmarried women in the population become smaller, even a constant number of illegitimate births will result in higher rates among the relatively few women available. Further, because the number of women at risk is so small, even a rate which appears to be very high will contribute only a small number of births to the total. In this projection, it is assumed that illegitimate fertility

will remain constant after 1968, at levels slightly above those of the present.

3.28. All calculations of trends were based on data relating to the whole of Scotland, since the information required was not available for the Survey Area. According to the standardized death rates published by the Registrar-General, there does not appear to be any significant difference between the rates experienced in the Area and those of Scotland, and therefore it is unlikely that any serious error will result from the use of the national rates. Fertility rates in the Area, on the other hand, do seem to be slightly below the national average, but the differences are probably too small to warrant modifications which would be arbitrary and which would not necessarily make the projection any more reliable as a guide to the future. Moreover, the projection is intended to give an estimate of the maximum growth which is likely to occur, and for this reason the national trend was used without alteration.

3.29. A full account of the calculation of these trends is given in the Lothians Regional Survey<sup>(2)</sup> and therefore it is not proposed to discuss the techniques in detail here. Briefly, however, the methods were as follows.

### Deaths

3.30. For each sex and age group, regression lines were fitted to the logarithms of the Scottish death rates over the period 1911-1960 and estimates for the future were obtained from the values of the trend lines at the mid-year of each projection period. This procedure gave group death rates at five-year intervals, but not at the ages required for the projection. In the first place, for ages over 15, the rates are published in ten-year age ranges, making it necessary to estimate the intervening values for quinquennial groups, while for the first five years of life, death rates at each year of age were required. In the second place, the rate given by the trend line for a group aged, say, 10-14 represented the death rate among people whose average age at the mid-year of a projection period was 12½. This rate is not appropriate for the projection, in which the group is aged 10-14 (average age 12½) at the beginning of a projection period, since their average age at the mid point 2½ years later would be 15. These problems were overcome by plotting the death rates for the central year of each period, as obtained from the regression lines, on semi-logarithmic graph paper and estimating the central death rates for the required quinquennial age groups from a visually fitted curve. By these methods, gradually decreasing mortality rates were obtained for each age group, except at ages over 85, for which the 1963 rate was held constant throughout the projection. After 1968 no further decrease was assumed. Table 3.7 shows the rates estimated for 1963 and 1968, i.e., the highest and the lowest rates used in the projection.

<sup>(1)</sup> Legitimate fertility: births per 1,000 married women.  
Illegitimate fertility: births per 1,000 single, widowed and divorced women.

<sup>(2)</sup> Lothians Regional Survey and Plan, op. cit., Volume 1, Technical Appendix to Chapter 3.

TABLE 3.7  
Estimated age specific mortality rates,  
1963 and 1968

Rates per 1,000

Central age of group	1963		1968	
	Males	Females	Males	Females
5	0.71	0.50	0.20	0.12
10	0.54	0.32	0.21	0.10
15	0.52	0.31	0.22	0.10
20	0.90	0.60	0.46	0.20
25	1.05	0.64	0.56	0.33
30	1.20	0.64	0.65	0.49
35	1.00	1.31	0.68	0.71
40	3.60	2.13	1.46	1.04
45	5.20	3.35	2.65	1.70
50	9.20	4.98	6.84	3.09
55	10.50	7.60	10.20	5.10
60	25.00	13.44	20.32	8.66
65	39.80	21.50	32.00	16.90
70	60.00	36.13	49.15	29.63
75	85.00	58.00	71.00	47.00
80	125.00	91.43	103.70	74.92
85	185.00	147.00	165.00	125.00
90	330.00	241.60	330.00	241.90
0	30.23	22.24	18.91	12.01
1	1.70	1.22	0.23	0.19
2	1.11	0.77	0.22	0.15
3	0.88	0.65	0.20	0.14
4	0.74	0.59	0.19	0.13

Source: See text

### Births<sup>(1)</sup>

3.31. The calculation of age specific fertility rates for all women involved two processes, the estimation of future fertility among both married and unmarried women and of the marital status distribution to be assumed. For women aged between 15 and 39, future age specific legitimate fertility rates were estimated for each quinquennial age group as at the mid-year of each projection period, from regression lines fitted to the logarithms of the Scottish age specific rates over the years since the beginning of the upward movement. This gave gradually increasing fertility rates at these ages up to the year 1978, after which no further change was assumed. For ages over 40, the 1961 rates were used unaltered throughout the projection. Illegitimate fertility rates were assumed to remain constant after 1968, at a level slightly above the 1963 rates.

3.32. The proportions of women assumed to be married at each date (shown in Table 3.8)

were calculated from estimated future marriage rates which rose gradually until 1978. Although marriage rates were held constant after that date, the consequent changes in the marital status distribution continued throughout the period until the year 2001, as the higher rates at the younger ages worked through the age structure.

The independent estimates of legitimate and illegitimate fertility at the mid-year of each period were then weighted together in the assumed ratios of married to single, widowed and divorced women at the beginning and at the end of the appropriate period. This gave, for each five-year interval, two sets of fertility rates for all women, the first based on the lower proportions married in the early part of the period and the second allowing for a higher proportion to be married by the end of the five years. Table 3.9 gives the rates obtained by this procedure. The level of fertility is unchanged after 1978, but the alterations in the proportions assumed to be married cause the fertility rates for all women to continue to rise until 1996.

3.33. For each projection period, annual births were calculated by averaging the numbers given by applying the fertility rates for the beginning of the period to the women in each age group in that year, and those given by applying the rates for the end of the period to the women in each age group at the later date.

### The populations implied by Projections I and II

3.34. The populations at each date up to 1986 given by Projection I are set out in Table 3.10. Expansion is steady throughout the period, but at a fairly modest pace; the average compound growth rate from 1961 to 1986 is 0.75 per cent per year. The number of births during each five-year period increases, due to the structure of the original population in 1961, which contained large numbers of girls aged under 15. As these girls enter the child-bearing age groups, there are in succeeding years more women available to have children, who by 1981 are themselves becoming of child-bearing age; thus, the cumulative effect could continue indefinitely. Therefore, an increasing number of births in the

<sup>(1)</sup> Detailed accounts of the methods will be found in the *Leithen Regional Survey and Plan, op. cit.*, Technical Appendixes C and D.

TABLE 3.8  
Percentage of women in each age group assumed to be married,  
1966-2001, based on rising marriage rates

Age	1966	1971	1976	1981	1986	1991	1996	2001
15-19	6.61	7.66	8.90	8.88	8.88	8.86	8.86	8.86
20-24	54.00	57.61	61.79	64.88	65.54	65.64	65.54	65.54
25-29	85.08	88.27	90.49	92.08	92.96	93.06	93.06	93.06
30-34	87.76	90.34	93.60	95.21	95.84	96.24	96.28	96.28
35-39	89.62	89.05	92.67	94.19	95.16	95.66	95.99	95.99
40-44	85.53	85.70	87.65	90.96	92.09	92.90	93.53	93.53
45-49	82.08	82.29	82.45	84.35	87.51	88.59	89.30	89.79

Source: *Leithen Regional Survey and Plan, Volume I, Appendix D, Table D.9*

TABLE 3.9

Estimated age specific fertility rates for all women, 1961-2001

Rates per 1,000

Age	1961-66		1965-71		1971-75		1976-81	
	1961	1965	1966	1971	1971	1975	1976	1981
15-19	31.69	35.92	37.59	42.21	42.54	45.51	45.88	48.50
20-24	102.39	181.79	168.62	197.29	200.36	212.23	215.69	225.57
25-29	191.46	197.82	205.69	210.07	217.43	221.62	228.66	235.21
30-34	117.35	119.43	123.69	127.61	130.40	132.59	135.11	138.40
35-39	90.06	94.02	92.59	94.15	97.06	99.61	73.82	74.15
40-44	17.27	25.43	16.43	16.42	16.60	17.15	17.15	17.64
	1981-86		1986-91		1991-96			
	1981	1986	1986	1991	1991	1996		
15-19	48.52	48.52	no further change					
20-24	225.57	227.11						
25-29	233.21	235.41	235.01	235.41	235.41	238.21		
30-34	138.40	137.21	137.21	137.45	137.45	137.70		
35-39	74.15	74.76	74.76	75.07	75.07	75.28		
40-44	17.64	17.62	17.62	17.65	17.65	18.00		

Source: See text, and *Leslie's Population Survey and Plan*, Volume I, Appendix E, Table B.3

future is implied, even by the constant and fairly low fertility rates used here.

3.35. In the older age groups a reduction in the number of males over 75 between 1961 and 1966 is probably due mainly to the structure of the original population, although the decline may be exaggerated by the high death rates assumed at these ages. In 1976 this group begins to expand again. For females, the projection shows a steady growth in numbers which offsets the decrease in the figures for males. But it is probable that if death rates at younger ages continue to fall, the increase in the population aged over 75 may be more rapid than this projection suggests.

3.36. Although we are concerned primarily with growth to 1986, the calculation of Projection II was continued until the year 2001. Table 3.11 shows the populations at each date given by this projection. As expected, the rising fertility and falling mortality rates produce a much faster rate of growth than the assumptions of Projection I. Between 1961 and 1966, the annual average compound rate of growth of the second projection is 1.23 per cent (compared with 0.75 per cent for the previous projection). As time progresses the rate becomes even faster; over the whole period from 1961 to 2001, the annual rate of growth of this estimate is 1.39 per cent. Since both projections began with the same base population in 1961 and no migration was assumed in either, the differences are entirely due to the levels of births and deaths assumed. In 1986 the total populations given by the two estimates differ by 18.53 thousand people. The falling death rates used in Projection II imply larger numbers of survivors of the original population in every age group, but while this factor does contribute to the faster growth of this projection, a more striking feature

is the rapid increase in the number of births. This has a considerable effect on the age structure of the population, as Table 3.12 illustrates. Both projections imply larger proportions of young people by 1986, but the effect is much more marked in Projection II. In 1961, 25.9 per cent of the population was aged 0-14; under Projection I this proportion rises to 26.9 per cent in 1986, but under the second projection 31.4 per cent of a larger total is in this age range.

3.37. The second projection also shows a greater increase in the number of people over the age of 65 although, due to the structure of the original population, there are fluctuations in the size of some groups at the various dates. Between 1961 and 1966, for instance, the numbers aged 65-69 actually fall, because the group aged 40-44 in 1961 was relatively small. Nevertheless, the increases in the number of older people are quite considerable. In 1961 the groups aged 65 and over number 10.62 thousand; under Projection I this figure rises to 15.69 thousand in 1986, but the gradually declining mortality rates of Projection II imply an increase to 17.93 thousand by the same date. These groups, however, form the same proportion of the population under both projections, rising from 8.8 per cent of the total in 1961 to 11.0 per cent in 1986.

3.38. With the exception of those aged 45-58, all groups between 15 and 64 are larger in 1986 than in 1961, according to Projection II, but their proportion of the total falls from 65.3 per cent at the base year to 57.65 per cent in 1986. This projection implies, therefore, that if present trends continue unaltered there will be large increases in the school population and in those aged over 65, with those of working age increasing in numbers but falling as a proportion of the total.

TABLE 3.10  
Existing population of the Survey Area, 1967-86. Projection 1.

Age	1961			1966			1971			1976			1981			1986		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+		
-	5-57	5-19	10-76	5-71	5-48	11-19	5-96	5-72	11-68	6-58	6-07	12-65	6-63	6-36	12-99	6-85	6-67	13-52
-	4-93	4-74	9-67	5-55	5-18	10-73	5-70	5-47	11-17	5-65	5-70	11-35	6-32	6-05	12-37	6-61	6-34	12-95
-	5-15	5-18	10-33	4-92	4-73	9-65	5-44	5-17	10-61	5-52	5-46	11-15	5-94	5-66	11-60	5-80	5-53	11-33
-	4-38	4-17	8-55	5-23	5-17	10-40	4-91	4-72	9-63	5-52	5-15	10-67	5-67	5-44	11-11	5-82	5-58	11-40
-	5-65	4-93	10-58	4-85	4-15	9-00	5-30	5-13	10-43	5-46	4-70	10-16	5-49	5-13	10-62	5-64	5-42	11-06
-	3-91	4-02	7-93	5-61	4-01	9-62	4-80	4-13	8-93	5-46	5-12	10-58	4-85	4-62	9-47	5-46	5-11	10-57
-	4-64	4-06	8-70	5-68	4-00	9-68	5-58	5-29	10-87	5-27	4-11	9-38	5-42	5-10	10-52	4-81	4-62	9-47
-	4-25	4-37	8-63	4-01	4-03	8-04	5-84	5-69	11-53	5-55	5-97	11-52	4-23	4-09	8-32	5-37	5-07	10-44
-	3-79	4-01	7-80	4-19	4-53	8-72	5-64	4-07	9-71	5-33	5-66	10-99	5-49	5-88	11-37	4-16	4-03	8-19
-	4-04	4-17	8-21	5-69	3-55	9-24	5-52	4-06	9-58	5-33	6-13	11-46	5-49	5-88	11-37	4-16	4-03	8-19
-	4-12	4-08	8-20	5-86	4-03	9-91	5-52	5-83	11-35	5-69	6-13	11-82	5-49	5-88	11-37	4-16	4-03	8-19
-	3-64	3-72	7-36	5-63	3-60	9-23	5-59	5-85	11-44	5-37	5-65	11-02	5-40	5-94	11-34	4-16	4-03	8-19
-	2-59	3-10	5-69	3-21	3-46	6-67	5-38	5-52	10-90	5-16	5-50	10-66	5-40	5-94	11-34	4-16	4-03	8-19
-	1-76	2-31	4-07	2-23	2-77	5-00	2-45	3-08	5-53	2-79	3-25	6-04	2-61	3-20	5-81	2-58	3-03	5-61
-	1-19	1-72	2-91	1-31	1-91	3-22	1-45	2-35	3-80	1-97	2-54	4-51	2-07	2-66	4-73	1-94	2-64	4-58
-	1-56	2-08	3-64	1-62	2-94	4-56	1-49	2-59	4-07	1-67	2-59	4-26	2-06	2-66	4-72	2-21	2-69	5-90
All ages	59-64	60-68	120-02	61-67	63-66	124-75	63-66	65-68	129-34	66-61	69-70	136-31	68-63	70-77	138-52	71-74	73-82	144-56
Index of growth 1961=100	100-00			103-92			107-02			111-50			116-07			120-45		

N.B. Columns and rows may not add to totals because of rounding



TABLE 3.11  
Existing population of the Survey Area, 1966-2007. Projection II.

Age	1966			1971			1976			1981			1986			1991			1996			2000		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
0-4	6-20	5-94	12-14	6-82	6-41	13-23	7-06	7-50	14-56	8-77	8-28	17-15	9-36	9-13	18-49	10-55	10-67	20-92	11-70	11-22	22-90	12-10	12-38	24-77
5-9	5-25	5-10	10-35	5-53	5-17	10-70	6-47	6-83	13-30	7-65	7-43	15-08	8-70	8-37	17-13	9-55	9-15	18-67	10-54	10-05	20-60	11-75	11-21	22-96
10-14	4-32	4-74	9-06	4-91	4-73	9-64	5-32	5-17	10-49	6-16	5-91	12-07	6-69	6-59	13-44	7-03	7-40	14-32	7-54	7-12	14-66	8-50	8-11	16-64
15-19	3-53	3-17	6-70	4-01	3-51	7-52	4-32	3-81	8-13	4-51	3-91	8-42	4-69	4-16	8-85	5-13	4-58	9-71	5-96	5-48	11-44	6-82	6-34	13-16
20-24	2-54	2-35	4-89	3-01	2-17	5-18	3-12	2-58	5-70	3-51	2-51	6-02	3-48	2-87	6-35	4-13	3-80	7-93	4-74	4-18	8-92	5-33	4-79	10-12
25-29	1-91	1-42	3-33	2-03	1-55	3-58	2-48	1-94	4-42	2-67	2-11	4-78	2-85	2-49	5-34	3-13	2-68	5-81	3-50	3-02	6-52	4-17	3-69	7-86
30-34	1-08	0-81	1-89	1-19	0-89	2-08	1-48	1-14	2-62	1-65	1-14	2-79	1-85	1-36	3-21	1-81	1-40	3-21	2-19	1-71	3-90	2-69	2-31	5-00
35-39	0-71	0-50	1-21	0-78	0-58	1-36	1-04	0-78	1-82	1-14	0-85	1-99	1-25	0-94	2-19	1-21	0-93	2-14	1-04	0-78	1-82	1-14	0-85	1-99
40-44	0-49	0-32	0-81	0-53	0-38	0-91	0-65	0-48	1-13	0-78	0-57	1-35	0-85	0-62	1-47	0-85	0-62	1-47	0-85	0-62	1-47	0-85	0-62	1-47
45-49	0-30	0-20	0-50	0-34	0-24	0-58	0-41	0-30	0-71	0-47	0-34	0-81	0-54	0-39	0-93	0-54	0-39	0-93	0-54	0-39	0-93	0-54	0-39	0-93
50-54	0-20	0-14	0-34	0-22	0-16	0-38	0-28	0-20	0-48	0-32	0-23	0-55	0-34	0-26	0-60	0-34	0-26	0-60	0-34	0-26	0-60	0-34	0-26	0-60
55-59	0-14	0-10	0-24	0-15	0-11	0-26	0-18	0-13	0-31	0-20	0-15	0-35	0-22	0-16	0-38	0-22	0-16	0-38	0-22	0-16	0-38	0-22	0-16	0-38
60-64	0-09	0-07	0-16	0-10	0-08	0-18	0-12	0-09	0-21	0-13	0-10	0-23	0-15	0-11	0-26	0-15	0-11	0-26	0-15	0-11	0-26	0-15	0-11	0-26
65-69	0-05	0-04	0-09	0-06	0-05	0-11	0-07	0-05	0-12	0-08	0-06	0-14	0-09	0-07	0-16	0-09	0-07	0-16	0-09	0-07	0-16	0-09	0-07	0-16
70-74	0-03	0-02	0-05	0-04	0-03	0-07	0-04	0-03	0-07	0-05	0-04	0-09	0-06	0-04	0-10	0-06	0-04	0-10	0-06	0-04	0-10	0-06	0-04	0-10
75 and over	1-44	2-51	3-95	1-47	2-75	4-22	1-77	3-09	4-86	2-25	3-68	6-11	2-65	4-49	7-07	2-80	4-79	7-59	2-72	4-68	7-60	2-94	5-10	7-94
All ages	61-68	64-13	125-80	67-25	69-61	136-86	74-76	78-05	152-81	87-02	89-20	176-22	94-45	97-15	191-60	99-45	101-90	201-35	104-03	106-15	210-18	104-03	106-15	210-18
Index of growth, 1961=100	104-07			110-06			118-65			126-41			135-80			146-73			159-22			172-80		

N.B. Figures may not add to totals because of rounding

TABLE 3.12  
Percentage distribution by age and sex: existing population. Projections I and II.

Age	1965		1971		1976		1981		1986		1991		1996		2001	
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males
<i>Population I</i>																
0-4	4.6	4.4	9.0	4.6	4.4	9.0	4.6	4.4	9.0	4.6	4.4	9.0	4.6	4.4	9.0	4.6
5-14	8.4	7.9	16.3	8.7	8.2	16.9	8.8	8.4	17.2	8.9	8.6	17.5	9.0	8.7	17.7	9.1
15-29	4.4	4.1	8.5	3.6	3.4	7.0	4.1	3.9	8.0	4.1	3.9	8.0	4.1	3.9	8.0	4.1
30-44	16.3	16.5	32.8	16.4	16.4	32.8	16.5	16.5	33.0	16.6	16.6	33.2	16.7	16.7	33.4	16.8
45-64	11.7	12.3	24.0	11.8	12.4	24.2	11.9	12.5	24.4	12.0	12.6	24.6	12.1	12.7	24.8	12.3
65+	4.0	3.6	7.6	4.4	4.3	8.7	4.8	4.8	9.6	5.2	5.2	10.4	5.6	5.6	11.2	6.0
All ages	49.1	50.9	100.0	49.1	50.9	100.0	49.2	50.8	100.0	49.3	50.7	100.0	49.4	50.6	100.0	49.5
<i>Population II</i>																
0-4	4.9	4.7	9.6	5.2	5.0	10.2	5.8	5.5	11.3	5.9	5.6	11.5	6.0	5.7	11.7	6.2
5-14	8.3	7.9	16.2	8.8	8.3	17.1	9.7	9.2	18.9	10.2	9.7	19.9	10.4	10.0	20.4	10.5
15-29	4.4	4.1	8.5	3.7	3.4	7.1	4.1	3.9	8.0	4.2	4.0	8.2	4.4	4.2	8.6	4.6
30-44	15.9	16.3	32.2	15.9	16.0	31.9	16.1	16.2	32.3	16.1	16.3	32.4	16.2	16.4	32.6	16.4
45-64	11.6	12.2	23.8	11.2	11.9	23.1	12.1	12.5	24.6	12.1	12.6	24.7	12.2	12.7	24.9	12.3
65+	4.0	3.6	7.6	4.4	4.3	8.7	4.7	4.7	9.4	5.1	5.1	10.2	5.5	5.5	11.0	5.9
All ages	49.1	50.9	100.0	49.1	50.9	100.0	49.3	50.7	100.0	49.4	50.6	100.0	49.5	50.5	100.0	49.6

N.B. Cohort and row may not add to totals because of rounding

3.38. The totals given by these projections relate to the population in private households. But already in the Area there are over 4,000 people in institutions, etc., who were excluded from the base population. Since this was a fairly large percentage of the original total, it was assumed that the population in institutions would not increase proportionately but would remain roughly the same size. If an allowance of 4,500 is made (a little over 2.5 per cent of the 1966 total), the estimate of Projection II for 1966 is raised to 167.6 thousand.

#### Two Possible Variations on Projection II

3.40. It was thought desirable to investigate the effects of two types of variation on Projection II. The effect on fertility of altering the assumptions about future marriage rates was examined (Projection IIA). And, whereas Projection II assumes no migration on the ground that net emigration among the resident population is likely to fade away in an expanding community, Projection IIB assumes continued migration for some years. The two modifications of Projection II, which follow, demonstrate the effects of these changes in the assumptions. In neither case is the result substantially different from Projection II, unless it were assumed that the net emigration incorporated in Projection IIB would continue during the phase of planned immigration after 1971, which seems unlikely. While these alternative versions are shown, however, it is Projection II and not the variations of it which will be used as the basis of the total population estimates in Section IV of the Chapter.

#### Marriage rates (Projection IIA)

3.41. This modification of Projection II illustrates the results of one change in the assumptions about future fertility. The trends in marriage rates and fertility rates had been calculated from data up to 1962; however, when further figures became available (up to 1964), it was found that marriage rates had apparently not risen as rapidly as the trend line had predicted and, in fact, at some ages had even fallen. It may be that these two years are merely an exception to the general trend, or they may indicate that marriage rates had reached their maximum by 1962 and would not rise any

further.<sup>(1)</sup> While there is no way of determining which is true, it seems more likely that the trend towards younger marriage will continue and that if there is to be a variation it will be in fertility rates, so knowledge of family planning becomes more widespread. Nevertheless, on this evidence it was decided to prepare a modified version of the projection, assuming that the level of fertility at each age would continue to rise but that marriage rates would remain at the 1961 levels. This does not mean that the proportions actually married at that date were held constant, but that the proportions marrying at each age would continue as in 1961. Of the population projected at each date, therefore, a smaller proportion was assumed to be married than in Projection II.<sup>(2)</sup> The rising fertility rates previously calculated were used unaltered, but the effect was a reduction in the relative weight of the high legitimate rates, resulting in lower rates for all women at each age (see Table 3.13). Although the level of fertility rises as before, until 1978, the changes in the fertility rates for all women resulting from alterations in the marital status distribution continue in this case only until 1986.

3.42. It is only in the generations born after 1961 that this version differs from the original projection; the numbers in all other age groups are identical to those given by Projection II. Table 3.14 gives the results of this exercise for dates up to 1986, and for the year 2001, showing the age groups affected by the alteration. Since fertility is still assumed to rise, the increases in the number of births in each period remain fairly large, but the gap between this model and Projection II widens at time progresses. This is illustrated by Diagram 3.2, which represents the 1966 population implied by each version. There is very little difference in the group which by 1966 would be aged 15-19, but with each succeeding group the discrepancy becomes larger; by the period 1961-1986 the difference is 1,850 births (before allowing for mortality in

<sup>(1)</sup> There is also the possibility that, since the later figures were calculated from Census data, whereas those for earlier years were based on estimates of the population structure, the actual trend has been obscured.

<sup>(2)</sup> For the marital status distribution assumed, see the *Leithen Regional Survey and Plan*, *op. cit.*, Volume I, Appendix D, Table D.8.

TABLE 3.13  
Estimated fertility rates for all women, based on  
constant (1961) marriage rates

Age	1961-66		1966-71		1971-76		1976-81		1981-86	
	1961	1966	1966	1971	1971	1976	1976	1981	1981	1986
15-19	31.59	31.6	25.9	35.9	36.2	36.2	36.5	36.5	36.5	36.5
20-24	182.99	179.0	186.5	187.0	189.9	189.9	192.0	192.0	192.8	192.6
25-29	191.65	236.5	204.4	204.4	211.6	212.0	219.7	219.7	219.7	219.7
30-34	117.35	119.2	122.4	125.3	129.1	129.2	131.4	132.1	132.1	132.1
35-39	60.65	59.4	62.9	64.0	67.2	68.0	72.7	72.7	72.7	72.8
40-44	17.37	16.8	16.8	16.8	16.6	17.1	17.1	17.5	17.5	17.5

Source: Derived from the *Leithen Regional Survey and Plan*, Volume I, Tables C.3 and D.8

the first five years of life), or 870 births per year. In the last period, 1996-2001, the annual number of births implied by this modification is 740 fewer than those of Projection II.

3.43. This single alteration in the assumptions is sufficient to reduce the 1986 total given by Projection II by 4,370 people. Moreover, the age groups affected are all under 25 at this date.

### Migration (Projection IIB)

3.44. Although it was decided to base our estimate of the future population of the Area on the assumption that net emigration would cease, an attempt was made to investigate the way in which the future population could be affected by continued migration. It was hoped that the questions on internal migration put to a 10 per cent sample of the population at the 1961 Census

might provide some useful information on this subject. Unfortunately, however, the figures were too general for our purpose. In the first place, they gave no age breakdown<sup>(1)</sup> and, secondly, they related only to people moving into a local authority area; there was no information on the numbers moving out.<sup>(2)</sup> Also, as an immigrant was defined simply as a person who had moved in from another local authority

<sup>(1)</sup> The figures used were the Scales D enumeration district tables; they gave children under 15, both sexes together, and adults over 15 by sex, but not by age.

<sup>(2)</sup> The national summary tables, which appeared in 1966, did give numbers moving out of local authority districts, but only those moving to other parts of Scotland. Since it is probable that many emigrants went to places outside Scotland and were therefore omitted from the tables, it was felt that these figures did not give a true picture of population movements.

DIAGRAM 3.2  
THE CONSEQUENCE OF CONSTANT MARRIAGE RATE  
Projection II and Projection IIA, 1986

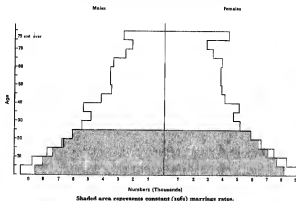


TABLE 3.14  
Projection IIA. Constant marriage rates (1961 level).

Both sexes, thousands						
Age	1966	1971	1976	1981	1986	2001
0-4	12.00	13.21	14.54	15.78	16.87	22.23
5-9		12.05	13.18	14.33	15.76	20.15
10-14			12.83	13.17	14.51	18.35
15-19				12.02	13.16	16.83
20-24					12.00	15.71
25-29						14.45
30-34						13.07
35-39						11.89
All other ages	113.65	107.62	100.70	95.89	88.41	63.07
TOTAL	125.65	132.63	140.46	149.19	158.71	195.66

district, the figures could not be related to the Survey Area as a whole, which consists of many local authority districts, and doubtless large numbers of people move from one to another within the Area. These people would be classed as immigrants in the Census tables, but for our purpose they did not move into the Survey Area, and therefore an aggregation of the local authority figures in the tables did not give the information we required.

3.45. In the absence of any other data, an estimate of net migration in the Area over a ten-year period was made. The total population of the Area at the 1951 Census (excluding Central No. 2 District of Stirling County, since the distribution of the population by age and sex was not available for the earlier date) was projected in the usual way through two five-year periods to give an estimate, by sex and age, of the 1961 population had no migration occurred. The death rates used for this process were those calculated for Projection I (i.e., Stirling County, 1960-62). To estimate births in the period, the average Scottish age specific fertility rates for all women were calculated for the years concerned, 1951-1955 and 1956-1960.<sup>(1)</sup>

3.46. The population resulting from this projection was compared with the 1961 population enumerated in the same area, and the differences were assumed to represent the numbers of migrants over the ten years. For each age group, these numbers were then converted into migration rates by expressing them as percentages of the age groups five years younger in the 1956 projected population. The mid-year of the period was chosen to allow the original population to experience half the mortality of the period, while the numbers of people five years younger at that date were used to ensure that the rates related the migrants to the size of their original age range and not to an entirely different group of people. The number of migrants aged 0-4 in the final period were related to the total number of births estimated for these years.

3.47. The ten-year migration rates for each sex and age group thus obtained are given in Table 3.15. They must be regarded with some caution, for migration alone may not have been the cause of some of the results. For instance, the rates suggest an apparent influx of males who in 1961 were aged 25-34. But inspection of the original groups aged 15-24 in 1951 showed that the numbers at that date seemed relatively small, perhaps because National Service was in operation at that time. Thus, the growth in these age groups may be due, not to immigration, but to the return of people who were absent from home at the first Census. There may be other similar causes of apparent population movement, but it is not possible to make allowance for these as the numbers involved are unknown. It is not claimed, therefore, that these rates are "correct" in the sense of giving an accurate picture of the people who moved into or out of the Area during the period, but they do give one possible pattern of net migration. And as our purpose is mainly to demonstrate the cumulative effects of any migration structure, the calculated rates were not adjusted in any

way; they were assumed to represent the movement that had taken place over ten years and they were used unaltered over the next ten-year period, from 1961 to 1971. For females, this meant a loss in every age group except 10-14 and 55-59, with especially high rates at each age between 15 and 34. Considerable movement was also implied for younger males, aged 15-39, but a substantial loss at age 20-24 was counteracted to some extent by fairly large gains in the next two age groups. The rates for both males and females were fairly high in the elderly age groups, but since the numbers of people at these ages were small, the movement implied was not great.<sup>(2)</sup>

TABLE 3.15

Estimated ten-year migration rates: Survey Area

Age	Per cent	
	Males	Females
0-4	-5.30	-6.25
5-9	-6.70	-8.20
10-14	+0.04	+0.11
15-19	+3.56	+3.05
20-24	-11.51	-3.96
25-29	+2.78	-2.45
30-34	+5.99	-2.61
35-39	-2.18	-0.55
40-44	+0.05	-0.69
45-49	-0.13	-0.21
50-54	+1.66	-0.29
55-59	-0.51	+1.17
60-64	-0.84	-0.65
65-69	-3.54	-0.03
70-74	-2.72	-1.23
75-79	-2.23	-2.15
80-84	-3.41	-3.80
85 and over	+3.67	-3.00

Source: See text

3.48. It was assumed that this pattern of migration would be repeated during the period 1961 to 1971. To give the total number of migrants over the ten years, the calculated rates were applied to the 1956 projected population; again the rates for each age group were applied to those aged five years younger at the mid-year of the period. The numbers thus given for each age group were added to or deducted from their corresponding age groups in the original estimate for 1971. This then represented the 1971 population as affected by ten years' migration. It was supposed that the movement would be evenly spread over the period, and therefore by 1956 half of the migrants would have moved. Each age group of the 1956 population was accordingly adjusted by half of the figure used for the group five years older in 1971.

3.49. After this period, no further migration was assumed and the projection was continued

<sup>(1)</sup> These are probably slightly higher than the rates experienced in the Area, and therefore births (and consequently migration in the two youngest age groups) may be overestimated.

<sup>(2)</sup> For example, the rate of -0.85 per cent for females aged 25-29 represents more movement than that of -2.25 per cent at age 75-79.

TABLE 3.16  
Projection HB. Migration between 1957 and 1971.

Age	1966			1971			1976			1981			1986			1991			1996			2001		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
0-4	509	509	1018	656	605	1261	702	708	1410	858	814	1672	953	881	1834	1040	954	1994	1110	1028	2138	1537	1400	2937
5-14	1833	903	2736	1136	1012	2148	1520	1189	2709	1414	1232	2646	1612	1540	3152	1723	1628	3351	1920	1833	3753	2147	2012	4159
15-29	522	507	1029	568	658	1226	573	577	1150	543	543	1086	632	628	1260	598	577	1175	630	613	1243	620	603	1223
30-44	2016	2039	4055	2566	2967	5533	2142	2132	4274	2539	2331	4870	2541	2404	4945	2749	2627	5376	3018	2833	5851	3058	2842	5900
45-64	1451	1500	2951	1475	1511	2986	1446	1532	2978	1413	1523	2936	1411	1519	2930	1442	1541	2983	1528	1596	3124	1645	1656	3301
65 and over	439	743	1182	563	846	1409	654	947	1601	709	1010	1719	780	1055	1835	945	1312	2257	771	1133	1904	757	1130	1887
All ages	6147	6343	12490	6117	6565	12682	6325	6399	12724	7521	7478	14999	7972	8004	15976	8487	8569	17056	9166	9057	18223	10043	10043	20086

N.B. Figures may not add to total because of rounding

in the manner of Projection II, with all other assumptions unchanged, giving an indication of the way in which the size and structure of the population could be affected by relatively small net movements in the first two periods only. Table 3.16 shows, for selected age groups, the adjusted populations given by this modification. The net effect of the movements assumed between 1961 and 1971 was a loss of only 1,147 males and 1,899 females.<sup>11</sup> In 1986, however, the total population given by this estimate is 4,330 fewer than the Projection II total, and by the year 2001 the difference is 7,750. Also, the alteration in the size of the individual age groups is enough to produce a significant reduction in the numbers of future births, although the rising fertility and marriage rates of Projection II were also used in this version. During the period 1961-1986, the births estimated are 670 fewer than in the original projection.

3.50. Although these differences do not seem large in relation to the total population, they are the results of only one ten-year period of migration. If population movement had been assumed to continue beyond 1971, the overall effect would have been substantial, even under the conditions of fast growth which the assumptions of Projection II provide.

3.51. It is obvious that in the long term the effects of variations such as those discussed in Projections IIA and IIB would be considerable, and it is to be expected that divergences from our projection arising from similar sources will occur in the actual development of the population. Nevertheless, since neither modification makes a substantial difference to the total given by Projection II, the original version, which implies the largest increase, is used in Section IV to estimate the total future population of the Survey Area.

### III

#### The Immigrant Population

3.52. The plans for the Survey Area include the proposal that the population be increased by 50,000 people in the next 20 years. This was understood to mean that, natural increase of the present population apart, provision was to be made for a further 50,000 immigrants and their natural increase. In view of the development that would be required before these people could be accommodated in the Area, it was estimated that immigration could not begin until 1971, and therefore the period during which planned immigration should take place was defined as the 15 years between 1971 and 1986. For the sake of simplicity, it was assumed that an equal number of people would arrive in each year; the target of 50,000 immigrants was accordingly divided into three five-year flows of 16,665 people. The problem then arose of selecting an appropriate sex and age distribution for this hypothetical future population. For two main reasons, the structure of all overspill population from Glasgow was chosen. First, it was important that the distribution used was of

a population known to be mobile, but the people moving to one specific town might well have been biased by attractions peculiar to that place. Glasgow overspill, on the other hand, was spread over a sufficient number of destinations to eliminate this factor. And, second, although it is not proposed that all immigrants should necessarily be recruited from Glasgow, the Survey Area will offer the same inducements which motivated overspill families to leave the city, namely housing and employment. The typical immigrant population contains high proportions of children and young adults and very few old people, and, as Table 3.17 shows, these characteristics are apparent also in this distribution.

TABLE 3.17  
Age and sex distribution of total Glasgow overspill, to December 1962

Age	per cent		
	Males	Females	Total
0-4	10.24	9.23	10.47
5-9	9.14	5.56	11.79
10-14	2.69	3.01	5.90
15-19	1.49	1.70	3.09
20-24	3.27	4.55	6.62
25-29	6.40	7.16	13.95
30-34	5.11	5.47	11.58
35-39	4.66	4.05	8.71
40-44	3.69	3.46	7.45
45-49	2.14	1.67	4.01
50-54	1.48	1.37	2.65
55-59	0.81	1.22	1.83
60-64	0.94	1.39	2.22
65-69	0.60	0.89	1.39
70-74	0.29	0.51	0.80
75 and over	0.25	0.27	0.52
All ages	49.66	50.40	100.00

Sources: Institute of Housing, Scottish Branch, 166 Annual Scottish Conference, 1963, *Programme of Proceedings*, p.33, Table IV

3.53. Each flow of 16,665 people was divided according to this structure, to give the number of males and females in each age group who would arrive in the Survey Area during a five-year immigration period. The composition of all three flows was thus identical. Basically, the assumptions made for the immigrant population were the same as those for Projection II of the present Survey Area population: the mortality and fertility rates were those already calculated. There were, however, some differences in their application during each five-year period of actual immigration.

#### Births

3.54. The crude birth rates of immigrant populations, for instance in New Towns, do appear to be higher than average, but there is no evidence to suggest that the completed

<sup>11</sup> The total number of migrants involved was much larger — 2,965 males and 2,907 females — due to gains at some ages and losses at others, especially among the male population.

families will be larger. In a population which contains very high proportions of women in the child-bearing age groups, most of whom are married, the fertility rates are likely to remain high until a more balanced age distribution is achieved. It was not considered justifiable, therefore, to increase the fertility rates for the immigrant population on the grounds that they would be likely to have large families. An allowance was made, however, for the probability that a higher proportion of the women would be married than in the established population. For this adjustment a marital status distribution had to be assumed for the immigrants, since the figures for Glasgow overpoll did not include this information. The distribution used was an average of the proportions married in East Kilbride and Cumbernauld at the 1961 Census.<sup>11</sup> The fertility rates of Projection II were combined in the ratios of married to unmarried women given by this distribution, resulting in the higher overall rates shown in Table 3.18. These rates were used to estimate births only for the five years during which the appropriate flow of immigrants were assumed to be arriving in the Area; once this period was over, the population was supposed to conform to the established population, and the fertility rates of Projection II (see Table 3.10) were used without alteration.

TABLE 3.18  
*Estimated age specific fertility rates for all women during the five years of immigration*  
Rates per 1,000

Age	Period of Immigration		
	1971-1976	1976-1981	1981-1986
15-19	16.7	43.6	46.5
20-24	212.5	229.4	227.2
25-29	225.5	232.5	234.1
30-34	133.5	125.6	136.6
35-39	70.6	73.7	74.4
40-44	17.4	17.4	17.7
45-49	1.0	1.0	1.0

Source: *Letchford Regional Survey and Plan, Appendix E, Table E.7*

3.55. It was assumed that equal numbers of women would arrive in each year and that during the actual year of arrival the number of births to immigrant women would be half those of a normal year. The number of births in the five-year period was therefore calculated as  $2\frac{1}{2}$  times the births of a single year, and the total thus given was distributed throughout the period as follows:

Year of birth	Percentage of births in period
1st year of period	4%
2nd " "	12%
3rd " "	20%
4th " "	28%
5th " "	36%

Mortality rates for  $4\frac{1}{2}$  years were applied to the births assumed to occur in the first year,  $5\frac{1}{2}$

years' mortality to those occurring in the second year, and so on, as described in paragraph 3.19. The age group 0-4 in the next projection period consisted of the survivors of this calculation plus, as explained below, half of the immigrants originally aged 0-4 in the period of intake.

### Deaths

3.56. To calculate the number of immigrants surviving through the five-year intake period, the falling death rates of Projection II were used, but since immigration was assumed to be evenly spread over the years, the average length of residence in the Area would be only  $2\frac{1}{2}$  years instead of the five years of a normal projection period. New survival rates were required which would estimate the number of the original immigrants who would survive this average of  $2\frac{1}{2}$  years. These were calculated for each flow of immigrants from the appropriate death rates for their period of immigration. The age distribution of these survivors then had to be adjusted, for after only  $2\frac{1}{2}$  years on average a complete five-year age group would not be eligible to enter the next age group. On the assumption that within the age ranges the numbers at each age would be evenly distributed, half of the survivors of each group at the end of the period were moved into the next age range and half assumed to remain in their original group. Thus, the original immigrant flow was aged by the average of  $2\frac{1}{2}$  years during this interval. Once each flow was established in the Survey Area in this manner, projection was by quinquennial age groups for five years, in the normal way, and no further adjustment was required. No allowance was made for emigration among this population.

3.57. The three flows of immigrants were projected separately and the resulting numbers at each date were added to give the estimated growth of the total immigrant population (see Table 3.19). The consequence of assuming a very young age structure and high proportions of married people is a rapid growth of the immigrant population. Under the assumed conditions, identical to those of Projection II, the original 50,000 immigrants would grow to number 60,430 by 1986, an increase of over 20 per cent by the end of the planned expansion.

3.58. Up to 1986, while immigration is still taking place, the growth in numbers is apparent in every age group and, due to the assumption that the structure of each flow will be constant, many of the obvious irregularities in the age distribution have begun to disappear by this date. By the time an age group, which in the original flow was small, has progressed through the structure, it has been joined by a larger group in the next immigrant flow arriving five years later. After 1986, which marks the end of planned immigration, the growth of this population is by natural increase only and the effects of the original structure begin to be apparent. The percentage age distribution at each date (Table 3.20) illustrates this. There is heavy concentration in the young age groups at each

<sup>11</sup> See the *Letchford Regional Survey and Plan*, op. cit., Appendix D, Table D16.



TABLE 3.19  
The growth of the nursing association, 1976-2001

[illegible]

N.B. Figures may not add to totals because of rounding.

TABLE 3.20  
Percentage distribution by age and sex of the immigrant population, 1976-2001

Age	1976			1981			1986			1991			1996			2001		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
0-4	8.3	8.3	17.6	7.6	7.3	14.8	6.8	6.5	13.9	5.8	5.6	11.3	5.7	6.0	11.6	6.5	6.2	12.8
5-9	7.6	7.6	14.4	7.4	7.1	14.4	7.1	6.9	13.7	6.2	5.9	12.5	5.0	5.2	10.2	5.3	5.1	10.4
10-14	4.3	4.3	8.6	4.0	3.7	7.7	3.5	3.4	7.0	2.9	2.8	5.7	3.0	2.9	5.9	2.7	2.6	5.3
15-19	4.3	4.3	8.6	4.0	3.7	7.7	3.5	3.4	7.0	2.9	2.8	5.7	3.0	2.9	5.9	2.7	2.6	5.3
20-24	1.1	1.1	2.2	1.0	0.9	1.9	0.9	0.8	1.7	0.8	0.7	1.5	0.8	0.7	1.5	0.7	0.6	1.3
25-29	4.9	4.9	9.8	4.7	4.4	9.1	4.1	3.7	8.0	3.5	3.3	7.2	3.0	2.8	6.6	2.8	2.6	5.4
30-34	5.9	5.9	11.6	5.6	5.3	10.9	5.3	5.1	10.4	4.7	4.4	9.1	4.1	3.7	8.0	4.3	4.1	8.6
35-39	5.9	5.9	11.6	5.6	5.3	10.9	5.3	5.1	10.4	4.7	4.4	9.1	4.1	3.7	8.0	4.3	4.1	8.6
40-44	5.9	5.9	11.6	5.6	5.3	10.9	5.3	5.1	10.4	4.7	4.4	9.1	4.1	3.7	8.0	4.3	4.1	8.6
45-49	5.9	5.9	11.6	5.6	5.3	10.9	5.3	5.1	10.4	4.7	4.4	9.1	4.1	3.7	8.0	4.3	4.1	8.6
50-54	1.7	1.7	3.4	1.6	1.4	3.0	1.3	1.2	2.5	1.2	1.0	2.2	1.2	1.0	2.2	1.1	0.9	2.0
55-59	1.1	1.1	2.2	1.0	0.9	1.9	0.9	0.8	1.7	0.8	0.7	1.5	0.8	0.7	1.5	0.7	0.6	1.3
60-64	0.7	0.7	1.4	0.6	0.6	1.2	0.6	0.5	1.0	0.5	0.4	0.9	0.5	0.4	0.9	0.4	0.3	0.7
65-69	0.9	0.9	1.8	0.8	0.7	1.5	0.7	0.6	1.3	0.7	0.6	1.3	0.7	0.6	1.3	0.7	0.6	1.3
70-74	0.9	0.9	1.8	0.8	0.7	1.5	0.7	0.6	1.3	0.7	0.6	1.3	0.7	0.6	1.3	0.7	0.6	1.3
75 and over	0.9	0.9	1.8	0.8	0.7	1.5	0.7	0.6	1.3	0.7	0.6	1.3	0.7	0.6	1.3	0.7	0.6	1.3
All ages	49.7	50.3	100.0	49.8	50.2	100.0	49.8	50.2	100.0	49.9	50.1	100.0	49.9	50.1	100.0	49.9	50.1	100.0

N.B. All figures rounded to the nearest decimal place

date, but after 1986, when 38.8 per cent of the population is aged under 14, these groups gradually diminish as a proportion of the total to 32.4 per cent in 2001. The numbers of children under five fall between 1986 and 1991, due to the ending of immigration, but with the large expansion in the child-bearing age groups which begins to take effect in 1991 both the number and the percentage of children begin to increase again.

3.59. At ages 25-39, the proportion drops between 1976 and 1986 from 30.3 per cent to 22.0 per cent, although the actual numbers in the groups increase. After 1986, however, as the influx of immigrants at these ages ceases, there is a decline in numbers and the proportion falls even further to 15.0 per cent in 1991. But this effect begins to be reversed by 2001, as the large numbers of people who arrived as immigrants aged under 10 begin to enter these age groups.

3.60. The groups aged over 40 form an increasing proportion of the total throughout the period, rising from 21.1 per cent in 1976 to 30.0 per cent in 2001. For ages over 65, however, large expansions will not occur until after this period, when the immigrants originally in their 20s and 30s reach these ages.

3.61. The natural increase of the immigrant population after 1986 is considerable; the total of 82,650 in 2001 represents a growth of 65 per cent over the original number of 50,000. And, due to the large proportions of young people in

this population, expansion of the immigrant component is likely to continue at a fast rate after this date.

#### IV

### The Total Population

3.62. Table 3.21 gives the entire population of the Survey Area as implied by Projection II of the present population and the immigrant projection combined, the highest estimate we have made. Although the population is unlikely to develop in exactly the way shown here, the continuation of present trends would result in rapid growth, so long as net emigration came to an end. The introduction of the immigrants gives an annual rate of growth for the total population of 2.52 per cent between 1961 and 1986. After this date growth is by natural increase, but because of the large proportions of people entering the child-bearing age groups (see Table 3.22) the rate of increase remains high at 1.78 per cent per year from 1986 to 2001, even though fertility and mortality rates are assumed to be constant during this period. These growth rates are high but not unreasonable, and the projected totals could well be reached provided the drift away from the Area ceases. And if the labour force is to increase sufficiently to make the Area a feasible growth point, expansion of this order is to be expected. Diagram 3.5

DIAGRAM 3.3  
THE GROWTH OF THE ENTIRE POPULATION  
IN SELECTED AGE GROUPS, 1966-2001

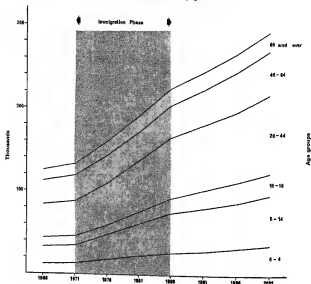


TABLE 3.22  
Percentage distribution by age and sex of the entire population of the Survey Area

Age	1966			1971			1976			1981			1986			1991			1996			2001		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
0-4	4.9	4.7	9.6	5.2	5.0	10.2	5.9	5.6	11.5	6.2	5.9	12.1	6.1	5.8	11.9	5.9	5.7	11.6	6.1	5.8	11.9	6.4	6.1	12.5
5-9	4.4	4.1	8.5	4.6	4.5	9.1	5.2	4.9	10.1	5.7	5.4	11.1	5.8	5.5	11.3	5.6	5.4	11.0	5.4	5.2	10.6	5.5	5.3	10.8
10-14	3.9	3.8	7.7	4.2	3.9	8.1	4.5	4.2	8.7	4.7	4.5	9.2	5.2	4.9	10.1	5.4	5.1	10.5	5.2	4.9	10.1	4.9	4.7	9.6
15-19	4.4	4.1	8.5	3.7	3.6	7.3	3.7	3.5	7.2	3.6	3.7	7.3	4.2	4.0	8.2	4.0	4.5	8.5	4.9	4.7	9.6	4.7	4.5	9.2
20-24	3.4	3.3	6.7	4.1	3.9	8.0	3.8	3.3	7.1	3.8	3.2	7.0	3.4	3.4	6.8	3.8	3.7	7.5	4.3	4.1	8.4	4.5	4.2	8.7
25-29	2.9	3.2	6.1	3.2	3.1	6.3	3.9	3.8	7.7	3.1	3.3	6.4	3.1	3.1	6.2	3.1	3.1	6.2	3.5	3.5	7.0	3.9	3.7	7.6
30-34	3.1	3.2	6.3	2.7	3.0	5.7	3.8	3.3	7.1	3.6	3.6	7.2	3.1	3.2	6.3	2.8	2.9	5.7	2.8	2.8	5.6	3.2	3.0	6.2
35-39	3.2	3.2	6.4	2.9	3.0	5.9	2.8	3.0	5.8	3.3	3.1	6.4	3.1	3.2	6.3	2.8	2.9	5.7	2.6	2.6	5.2	3.2	3.0	6.2
40-44	3.3	3.4	6.7	3.0	3.0	6.0	2.8	2.8	5.6	3.3	3.1	6.4	3.6	3.5	7.1	2.9	3.0	5.9	2.6	2.6	5.2	2.6	2.4	5.0
45-49	2.9	3.1	6.0	3.1	3.2	6.3	2.7	2.7	5.4	2.5	2.5	5.0	2.4	2.4	4.8	2.7	2.6	5.3	2.6	2.7	5.3	2.6	2.4	5.0
50-54	3.1	3.2	6.3	2.7	2.9	5.6	2.6	2.8	5.4	2.8	3.4	6.2	2.4	2.2	4.6	2.4	2.1	4.5	2.4	2.4	4.8	2.6	2.4	5.0
55-59	3.1	3.1	6.2	2.6	2.9	5.5	2.2	2.5	4.7	2.2	2.4	4.6	2.0	2.0	4.0	1.9	2.0	3.9	1.9	2.0	3.9	2.1	2.1	4.2
60-64	2.6	2.8	5.4	2.4	2.4	4.8	2.1	2.4	4.5	2.1	2.1	4.2	1.8	2.0	3.8	1.6	1.8	3.4	1.5	1.8	3.4	1.5	1.8	3.3
65-69	1.4	2.2	4.0	2.0	2.4	4.4	1.9	2.2	4.1	1.6	2.0	3.6	1.3	1.7	3.0	1.4	1.7	3.1	1.3	1.5	2.8	1.2	1.5	2.7
70-74	1.0	1.5	2.5	1.2	1.6	2.8	1.3	1.7	3.0	1.2	1.7	2.9	1.1	1.5	2.6	0.9	1.3	2.2	1.0	1.3	2.3	0.9	1.2	2.1
75+	1.1	1.9	3.0	1.1	1.1	2.2	1.1	1.1	2.2	1.2	1.2	2.4	1.3	1.3	2.6	1.3	1.3	2.6	1.2	1.2	2.4	1.1	1.1	2.2
All ages	49.1	50.8	100.0	49.1	51.1	100.0	49.1	50.8	100.0	49.3	50.9	100.0	49.6	50.4	100.0	49.4	50.5	100.0	49.8	50.2	100.0	49.7	50.1	100.0

N.B. Totals are rounded to 100.0 in most years

illustrates the growth throughout the period of the entire population in broad age groups. Immigration accounts for the large increases between 1971 and 1986, but even after this date the groups aged 20-64 continue to expand rapidly.

3.63. It must be remembered that the figures given here refer to population in private households. If a constant allowance of 4,500 is made for those in institutions, the 1986 total becomes 228 thousand and that for the year 2001 becomes 295.6 thousand. Alternatively, if the entire population is increased by a fixed proportion, say 2½ per cent, the totals given are 229 thousand in 1986 and 298.6 thousand in the year 2001. Any allowance for the institutional population is merely an approximation. Both methods, however, produce a total population in 1986 of just under 230 thousand.

## V

### Geographical Distribution in 1986

3.64. Obviously, population estimates for much smaller districts than the entire Survey Area will be required, but because projections, for small areas in particular, are subject to so many reservations, it was considered that any prediction of the long-term growth of individual communities would be meaningless. Nevertheless, in order to give some guide to the location of the immigrants, an indication of the growth pattern of the present population was desirable. For this purpose the Survey Area was divided into three regions, defined as follows:

Central Area: Falkirk L.B.; Grangemouth S.B.; and the C.C.E.D.s of Larbert, South Broomage and Muirhall, and Stenhousemuir East, North and South.

Bo'ness: Bo'ness S.B. and Bo'ness D.C.

Peripheral Area: Remainder of the Survey Area, including Denny, Bonnybridge and Polmont.

3.65. The 1961 populations of the Central Area and of Bo'ness and district were projected

to 1986 in accordance with the assumptions of Projection II, which implied the additional qualification that there would be no population movement within the Survey Area itself. The population of the Peripheral Area was then obtained by deducting these two estimates from the total given by Projection II. The results are shown in Table 3.23.

It must be emphasized that these figures are extremely tentative, but they do illustrate the effects of the original age structures of the different areas. The same conditions govern the growth of all three, but, for instance, the group aged 20-34 in the Central Area falls as a proportion of the total from 20.2 per cent in 1961 to 19.9 per cent in 1986, while the same age group in the Peripheral Area rises from 18.9 per cent in 1961 to 19.6 per cent at the later date. On the other hand, for the group aged 65 and over, the increase in the Central Area is from 8.9 per cent to 11.2 per cent and in the Peripheral Area from 8.5 per cent to 11.0 per cent, but in Bo'ness, which began with the highest proportion in this age group, the rise is only from 9.4 per cent to 10.4 per cent.

3.66. Before these figures can be compared with the distribution proposed for 1986 on physical planning grounds, a slight adjustment must be made. It is suggested that the Falkirk-Grangemouth-Larbert area could accommodate around 134 thousand people, but most of the expansion will take place to the south of Falkirk and to the north of Larbert, in districts which are outwith the Central Area as defined here. Also, the boundaries in 1986 may differ from those which exist at present. Much of the development, however, is envisaged in the C.C.E.D.s of Carron in the north and Shieldhill in the south, whose population in 1961 totalled 6,183. This number might grow by 1986 to around 8,500. If this figure is added to the Central Area total (and deducted from the Peripheral Area), an approximation to the pattern of the physical plan<sup>1</sup> is obtained and the scale of immigration possible in each region can be shown. This is done in Table 3.24.

3.67. From this exercise it would appear that

<sup>1</sup> See Volume II of this Report, prepared in the University of Edinburgh.

TABLE 3.23  
*The growth of the existing population in the three regions*

Age	Central Area		Bo'ness		Peripheral Area	
	1961	1986	1961	1986	1961	1986
0-4 . . . . .	6.04	10.57	1.31	2.26	9.41	6.06
5-14 . . . . .	11.07	17.79	2.39	3.96	6.95	10.71
15-19 . . . . .	4.37	7.47	1.02	1.64	2.94	4.37
20-34 . . . . .	13.60	18.01	2.77	5.84	7.33	10.40
35-64 . . . . .	25.95	26.85	5.27	5.68	14.60	15.76
65 and over . . . . .	5.98	10.10	1.33	2.01	3.31	5.82
All ages . . . . .	67.20	90.58	14.08	19.39	59.74	53.12

TABLE 3.24  
*Approximate geographical distribution of the entire  
population in 1986*

	Physical Plan	Existing Population	Immigrants	Total population in private households
Central Area . . .	134.0	99.1	30.0	129.1
Bo'ness . . .	24.0	19.4	4.0	23.4
Peripheral Area . .	71.0	44.6	25.4	71.0
Total Survey Area .	229.0	163.1	60.4	223.5

N.B. The discrepancies between the projected figures and the totals in the first column are due to the allowances made for population in institutions.

about half of the total immigrant population in 1986 could be accommodated in the areas around Falkirk, where immigration is likely to begin during the early part of the period. The expansion in the "Peripheral Area" will be mainly concentrated in the west, around Denny and Bonnybridge, and because of the large amount of development that will be needed in these areas, it is improbable that they could begin to receive immigrants until 1976 at the earliest. Therefore, although it is impossible to be precise about the volume and timing of immigration since in the end this depends on whether housing is available, it is possible that all immigrants arriving up till about 1978 could be located in the Central Area and Bo'ness, and those arriving after this date could be accommodated in the later developments around Denny and Bonnybridge.

## VI

### Conclusion

3.68. This Chapter has discussed one view of possible population development, that of rapid growth through natural increase and no emigration. As we are considering an area where expansion is to be the prime concern, this seemed a logical approach, but the projection depends on a large number of assumptions, each

chosen from many alternatives that would give different results.

3.69. Future fertility rates, in particular, will almost certainly differ from those used here and will probably decrease at some date within the span of this projection. Marriage rates, too, are unlikely to behave in exactly the way assumed. It is impossible to predict the timing or the magnitude of possible changes, but the effect on, for instance, the estimated school population could be considerable if either marriage or fertility rates, or both, were to differ from those assumed here.

3.70. The number of people available for work, especially males, will probably be affected more by the age structure of the population than by a change in activity rates. For the existing population, therefore, the factor most likely to cause a divergence from the estimates is migration, since most of the population who will be of working age in 1986 are already born at the beginning of the projection. If, however, the age structure of the immigrant population proves to be significantly different from that assumed, the size of the working population in the future could be substantially changed.

3.71. There can be no final answer about the size of the future population, and frequent, short-term forecasts will be required, but it is hoped that these calculations give an indication of the kind of expansion that could take place in the Survey Area.

# Industry and Employment

K. J. ALLEN AND S. C. ORR

4.1. This Chapter is in three parts. The first part is a study of the basic economic conditions in the Area in 1964 and how these have changed over the post-war period. Comparison is made with conditions in Scotland and Great Britain. The second part is concerned with an attempt to project employment to 1970 and 1976. The aim here is to outline problems which will be encountered in absorbing (a) the natural increase in working population, and (b) the planned immigration of 50,000 people. The third part summarizes the findings, discusses some of the problems of fulfilling the plan and makes some recommendations as to how these problems could be overcome. Lastly, an appendix discusses the problems and prospects for two of the major industries in the Area—chemicals and iron castings.

## The Existing Structure Employment

4.2. In June 1964 the total of insured employees (employed plus unemployed) in the Area<sup>(1)</sup> was 55,994, of which 39,715 were males and 16,279 females.

TABLE 4.1

*Percentage distribution of insured employees  
by industrial grouping, June 1964*

	Survey Area	Scotland	G.B.
Agriculture, forestry and fishing . . .	1.3	4.1	2.3
Mining and quarrying	2.7	3.2	2.9
Construction . . .	10.0	8.8	7.2
Services . . . . .	37.4	50.2	49.6
Manufacturing . . .	48.6	33.7	38.0
TOTAL . . . . .	100.0	100.0	100.0

<sup>(1)</sup> Comprising the Labour Exchange Areas of Falkirk, Bonnybridge, Bo'ness and Grangemouth. Bo'ness includes South Queensferry Sub Exchange Area which is outwith the scope of this Survey and Plan. In June 1964 the South Queensferry area accounted for a total of 1,327 employees, of whom 1,410 were males.

4.3. A percentage breakdown of total employees by the broad groups—agriculture and forestry, mining and quarrying, construction, services and manufacturing—is given in Table 4.1. This Table contains a similar analysis for Scotland and Great Britain at the same date.

4.4. A point of particular interest arising from this Table is the low proportion of employees in services; this is relative to both Scotland and Great Britain. At the same time, there is a high proportion of employees in manufacturing, again relative to both Scotland and Great Britain. The short-fall in the proportion employed in services is the more striking figure. It will be seen later from a more detailed analysis of employment that the low service employment is not attributable to a particularly large shortfall in any one service industry. Every single service industry in the Area, except transport and communications, takes a smaller proportion of total employees than in Great Britain. This low employment in services should be kept in mind in the subsequent discussion of future prospects of employment in the Area. The Area is lacking in a sector which, according to the National Plan, should enjoy a high rate of growth. The National Plan estimated that services would grow by 5.75 per cent between 1964 and 1970 as against 3.24 per cent for manufacturing. It is interesting to note that the sole service industry in which the proportion of employees in the Area is above that of Great Britain—transport and communications—is the only one in which the National Plan anticipated a decline in employment.

4.5. Table 4.2 provides a more detailed breakdown of the employee structure in the Area. It shows the proportion that each Ministry of Labour Order makes of total employees in the Area and the same analysis applied to Scotland and Great Britain. The future development of the Area, ignoring the influence of the development of new industry, is very largely a function of its present structure. The low proportion of employment in services, which can be expected to grow at a fast rate; the high proportion in castings, which can be expected to either stagnate or expand slowly; the high proportion in chemicals, which though expanding in terms of output are not expanding much in terms of employment; all point to the possible difficulties, in terms of employment, which might have to be faced in the future. These

aspects are taken up in greater detail in the discussion of employment projections.

TABLE 4.2  
Percentage distribution of insured employees  
by Order (June 1964)

Ministry of Labour Order	Survey Area	Scotland	G.B.
1. Agriculture, forestry and fishing	1.51	4.07	2.32
2. Mining and quarrying	2.73	3.15	2.06
3. Food, drink and tobacco	2.56	4.53	3.52
4. Chemicals and allied industries	12.06	1.63	2.22
5. Metal manufacture	17.60	2.49	2.71
6. Engineering and electrical goods	0.94	7.77	9.51
7. Shipbuilding and marine engineering	1.25	2.34	0.93
8. Vehicles	1.66	1.94	3.70
9. Metal goods not elsewhere specified	1.69	1.26	2.48
10. Textiles	0.86	4.57	3.4
11. Leather, leather goods and fur	—	0.2	0.27
12. Clothing and footwear	0.02	1.34	2.34
13. Bricks, pottery, glass, cement, etc.	3.85	1.12	1.53
14. Timber, furniture, etc.	3.01	1.11	1.26
15. Paper, printing and publishing	2.96	2.67	2.71
16. Other Manufac- turing industries	0.09	0.77	1.4
17. Construction	9.98	8.85	7.17
18. Gas, electricity and water	1.2	1.51	1.75
19. Transport and communications	8.33	7.9	7.3
20. Distributive trades	9.2	13.81	12.81
21. Insurance, banking and finance	1.0	2.0	2.71
22. Professional and scientific services	7.57	11.06	9.69
23. Miscellaneous services	6.57	9.52	9.45
24. Public administration	3.36	5.39	5.58
TOTAL	100.00	100.00	100.00

4.6. The main issues which arise out of this Table can be summarized as follows:

1. The major differences in proportions between Great Britain and/or Scotland and the Survey Area are in the Orders of chemicals and metal manufacture. The proportion employed in chemicals, with 12.06 per cent of total employees, is over six times the Scottish figure of 1.63 per cent and five times the Great Britain figure of 2.22 per cent. Metal manufacture, with 17.60 per cent, is again well out of line with the Scottish figure of 2.49 per cent and the Great Britain figure of 2.71 per cent.
2. The three major Orders of chemicals, metal manufacture and construction make up 39.64 per cent of total employees in the Area, as against 12.97 per cent in Scotland and 12.10 per cent in Great Britain. The two Orders of chemicals and metal manufacture make up 61 per cent of total employees in manufacturing. It is obvious that future employment prospects in the Area will be very much influenced by these three Orders.
3. The majority of employees in the metal manufacturing Order are in Ministry of Labour Minimum List Heading number 313, i.e., iron castings. This group takes 75 per cent of the total employees in the metal manufacturing Order. Most of the remaining employees in this Order are in Minimum List Heading number 521, i.e., light metals, and in the Area this means aluminium. These two Minimum List Headings together account for 90 per cent of this Order.
4. It has already been pointed out above that all but one of the service Orders take a lower proportion of total employees than in Great Britain or Scotland. In manufacturing, the proportions are not much out of line with Great Britain or Scottish proportions except for the above-mentioned chemicals and metal manufacturing Orders, and also the engineering and electrical Order where the proportion at 0.94 per cent is well below the Great Britain figure of 9.51 per cent and the Scottish figure of 7.77 per cent.

### Unemployment

4.7. Table 4.3 below shows the unemployed as a percentage of total insured employees in the Area for selected years. Similar figures are supplied for Scotland and Great Britain.

4.8. The total percentage unemployed in the Area is consistently higher than that for Great Britain. In the case of males, however, the rate for the Area is not very different from that for Great Britain and substantially less than the Scottish rate, except in 1956. It is the rates for female unemployment that compare most unfavourably with both the Scottish and the British figures.

4.9. A measure which economists frequently use to assess the tightness of a labour market is vacancies expressed as a percentage of the un-



TABLE 4.3  
Percentage Unemployed

Year	Great Britain			Scotland			Survey Area		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1951	0.88	0.88	0.88	2.05	1.67	1.92	0.88	2.08	1.58
1956	0.89	0.83	0.87	1.85	2.01	1.91	2.19	5.4	3.09
1961	1.27	0.87	1.13	2.86	2.13	2.6	1.44	5.69	2.65
1963	2.35	1.41	2.01	4.74	3.18	4.17	2.34	6.74	3.63
1964	1.42	0.92	1.37	3.55	2.5	3.17	1.98	6.78	3.38

employed. The use of this measure to compare the Survey Area with Great Britain and Scotland gives results which are not dissimilar to those derived from the comparison of unemployment rates. In 1964 vacancies amounted to 77 per cent of the unemployed in Great Britain, 14.8 per cent in Scotland and 20.9 per cent in the Survey Area. Thus, the labour market in the Survey Area is much less tight than in Great Britain and slightly tighter than in Scotland. In the case of females, the percentages are 29.2 for Great Britain, 51.3 for Scotland and 3.7 for the Survey Area, thus strongly illustrating the weakness of the market for female labour in the Area.

#### Characteristics of the unemployed

4.10. The unemployed males in the Survey Area have been analysed according to age and duration of unemployment. The figures are for July 1964, and comparison is made with Scotland and Great Britain. Table 4.4 shows the unemployed in a number of "duration of unemployment" bands as a percentage of total unemployed.

TABLE 4.4  
Duration of male unemployment

Duration of unemployment in weeks	Survey Area	Scotland	G.B.
0-5	40.3	30.8	33.2
5-13	14.4	15.8	16.1
13-26	9.7	12.6	12.4
26-52	12.3	14.6	14.1
52 and over	23.3	26.4	24.2
TOTAL	100.0	100.0	100.0

4.11. The structure of unemployment by duration is not radically different between the three areas. Such an analysis is useful, however, as an illustration of the fact that unemployment is not representative of labour supply. In all three areas a high percentage have been unemployed for 26 weeks or more—35.5 per cent in the Survey Area, 40.9 per cent in Scotland and 38.3 per cent in Great Britain. It is a characteristic of such long-term unemployed that a substantial proportion are either not anxious to find employment or not particularly

good or useful employees. At the other end of the scale, there is a very high proportion of the unemployed who have been unemployed for less than five weeks. These should not be considered as unused resources in the labour market but merely as changing their jobs. These points are borne out by the results of a Ministry of Labour inquiry in 1964,<sup>(1)</sup> which showed that in Scotland only 23.4 per cent of the total unemployed were out of work because of "lack of local employment opportunities".

4.12. Table 4.5 shows the percentage distribution by age of males unemployed in July 1964.

TABLE 4.5  
Male unemployment by age groups

Age	Survey Area	Scotland	G.B.
Under 20	15.1	14.4	10.2
20-40	30.7	36.9	39.0
40 and above	54.2	48.7	56.8
TOTAL	100.0	100.0	100.0

4.13. The age structure of the unemployed is not very dissimilar in the three areas. The high proportion for all three areas in the age group "40 and above" is to be expected. Many of these are the same people who are the long-term unemployed. Of the unemployed of "40 and above", 66.2 per cent in the Area have been unemployed for 13 weeks or more as against 70 per cent in Scotland and 65.4 per cent in Great Britain. Of the unemployed who have been unemployed for 13 weeks or more, 79.1 per cent are over 40 years of age in the Area, as against 63.7 per cent in Scotland and 73.2 per cent in Great Britain.

4.14. Although the percentage of females unemployed is much higher than that of males in the Area and higher than the percentages for females in both Scotland and Great Britain, the above analysis has been applied to males only. The peculiarities of female unemployment statistics would make such an analysis meaning-

(1) Ministry of Labour Gazette, April, 1966, pp. 156-157.

less. A very large proportion of the females registered as unemployed are not in fact seeking further employment, but rather are in the process of withdrawing from the labour market. In terms of labour supply, the most relevant characteristic is the female participation rate, which is 40.8 per cent for the Area compared with 53.9 per cent for Great Britain. The low participation rate, the low percentage of vacancies to unemployed and the high unemployment rate, if taken together, suggest a considerable potential supply of female labour.<sup>(1)</sup>

#### *Employment changes 1951-64*

4.15. Table 4.6 below shows the percentage change in employees for the Area, Scotland and Great Britain between specific dates.

TABLE 4.6  
*Percentage change in employees*

	Percentage change 1951-64			Percentage change 1960-64		
	Males	Females	Total	Males	Females	Total
Survey Area . . .	+4.54	+12.40	+6.73	-0.29	+4.19	+0.97
Scotland . . .	+0.58	+9.78	+3.75	+0.14	+4.05	+1.53
Great Britain . . .	+8.53	+17.01	+11.42	+3.2	+5.61	+4.05

4.16. Between 1951 and 1964 the percentage change in employment for the Area was above that of Scotland but, at the same time, well below the British rate of growth. Most of the expansion in employment in the Area took place in the late 1950s, with little or no change in the period 1960 to 1964, when the rate of growth in fact falls below the Scottish rate. In the Area, as in Scotland and Great Britain, the expansion in employment for females has been larger than that for males; indeed, between 1960 and 1964 the number of employed males in the Area declined slightly.

4.17. The composition of the gross employment changes shown above are indicated in

TABLE 4.7

#### *Percentage change in total employees by broad industrial groups in the Survey Area*

Industrial group	1951-64 percentage change	1960-64 percentage change
Agriculture, forestry and fishing . . .	-3.4	---
Mining and quarrying . . .	-29.4	-34.6
Construction . . .	+30.6	+23.1
Services . . .	+27.7	+7.4
Manufacturing . . .	-9.6	-4.1
TOTAL . . .	+6.7	+0.97

Table 4.7 below. This shows the percentage change in employment (male and female), in broad industrial groupings, between the same dates as in Table 4.6.

4.18. Table 4.7 shows that the expansion in total employment in the Area has been largely through construction and services and in the face of declining primary and manufacturing industry. The large expansion in construction coincided with the heavy activity in chemical construction which took place in the late 1950s. Although tailing off slightly in the later period, construction continued to expand.

4.19. The industrial reclassification of 1958 makes difficult any comprehensive analysis of the interesting fall in employment in manufacturing. It is worthwhile, however, to try to

examine the changes in employment for the four main Minimum List Headings in the Area. In 1964 these four groups absorbed almost 60 per cent of the Area's manufacturing employees. Table 4.8 shows the changes in employment between 1951 and 1964 for these groups.

4.20. It is clear that any expansion in total manufacturing employment which might have come about through the expansion of chemicals and mineral oil refining has been offset by the decline in castings and light metals. Indeed, it can be seen that the expansion of one is just about cancelled out by the decline of the other. Apart from the four groups shown above, the other two large industrial groups in the Area are bricks and timber (Minimum List Headings 461 and 471 respectively). These two industries, when added to the four above, made up almost 71 per cent of total employees in manufacturing in 1964. Both bricks and timber declined during the period 1951 to 1964. Bricks declined from 1,780 employees to 1,601 (a fall of 10.1 per cent). Timber declined from 2,086 to 1,415 (a decline of 32.2 per cent).

4.21. The course of change in these main manufacturing groups in the Area over the past 15 years can be summarized as follows:

1. Castings.—A virtually continuous fall in

<sup>(1)</sup> This was borne out also during interviews with the large female-employing firms in the Area, most of whom had no difficulty in recruiting labour. A number of large female-employing industries have entered the Area recently and the presence of a large reserve of such labour has been one of the principal location factors.

TABLE 4.8  
*Changes in employment in the major  
manufacturing industries, 1951-64*

Industry	1951	1964	Absolute change	Percentage change
Castings . . .	11,214	7,638	-3,585	-31.9
Light metals . .	2,127	1,979	-148	-6.9
Chemicals . . .	2,568	3,483	+2,921	+115.7
Mineral oil refining .	503	1,064	+556	+109.4

employment, though the rate of decline, both percentage-wise and in absolute numbers, begins to slow down after 1958.

2. Light metals.—Virtual stagnation in terms of employees throughout the whole period.
3. Chemicals.—A doubling of employment between 1951 and 1964, but with the rate of growth slowing down in the 1960s and little or no gain between 1960 and 1964.
4. Mineral oil refining.—Apart from the initial jump between 1951 and 1954, this industry has shown fairly stagnant employment. Output has, of course, increased continually.
5. Bricks.—Moving up to a peak in 1955, the industry then stagnated in the late 1950s and slightly declined in the 1960s.
6. Timber.—This has been fairly erratic in its employment, but since 1957 there has been a fairly steady decline in employment.

4.22. The Area has seen the expansion in chemical employment being cancelled out by the declining castings and light metals and, on top of this, the only other large employing groups in the Area, bricks and timber, have also declined. These six groups make up such a large proportion of total employment in manufacturing that the remaining manufacturing groups would find it very hard indeed to cancel out or offset the decline in these groups.

## II

### Employment Prospects and Projections<sup>(1)</sup>

#### *The assumptions and their limitations*

4.23. Employment forecasting on a national scale is a hazardous business, and forecasting for smaller areas is even more so. Events of the future depend on many unpredictable factors, and there is no way of completely eliminating all these uncertainties. They can only be replaced by assumptions. Inevitably, the reliability of forecasts diminishes as the forecast extends into the future. The danger is that projections may be too readily accepted and the assumptions forgotten. Projections do not pretend to give a picture of what will be but rather of what could be, on the basis of a number of assumptions. Accepting these points, the projections below are intended to outline particular problems which will have to be met if the aims and

objectives of the Growth Area are to be fulfilled. At the same time, the projections are used as a base for policy suggestions. This is the essence of planning—to outline problems and the feasibility of attaining objectives, and in the light of these findings either to vary the objectives and/or to propose policy measures to attain them.

4.24. The basic objective of this Section is to set the various projections of employment against the estimated expansion in working population. For this purpose the estimates for the expansion of working population take no account of immigration or emigration, but simply use the estimated natural increase of working population. Before considering the introduction into the Area of 50,000 immigrants, it is necessary first to explore the possibilities of absorbing the Area's own natural increase in working population.

4.25. Estimates given in Chapter 3 suggest a working population for the Survey Area of 60,830 by 1971 and 61,760 by 1976. These estimates use participation rates which were calculated for the Lothians study and which were based on actual and expected participation rates for Great Britain.<sup>(2)</sup> The use of British participation rates, however, will tend to exaggerate the likely growth of the working population. In 1961 the British rate for males, taking the percentage of total employees to total population of working age as a rough measure, was 99.7, compared with 95.4 in the Survey Area. For females the percentage was 53.9 in Great Britain and 40.8 in the Area. The extent to which the British rates used in Chapter 3 tend to exaggerate the estimates can be illustrated by the fact that they would have produced a total working population of 59,965 in the Survey Area in 1961, whereas the actual total was 54,063.<sup>(3)</sup> The acceptance of working population projections which are based on British

<sup>(1)</sup> Since these projections were made there has been a considerable amount of industrial development in the Area, particularly by firms employing mainly female labour. In consequence the projections tend to understate employment prospects.

<sup>(2)</sup> *Lothian Regional Survey and Plan*, Volume I, H.M.S.O., Edinburgh, 1966, Chapter 3.

<sup>(3)</sup> Excluding the Sub-Exchange of South Queensferry which, in the absence of data, has been assumed to have the same proportion of the total as in 1964, viz. 3.4 per cent.

participation rates would imply an acceptance, as an objective, of the raising of participation rates in the Area to the British level. Participation rates, however, are not simply a function of job opportunity. They change slowly, and over the short period of ten years it could be assumed that they will not change much. If this assumption is accepted, then crude estimates of working population in 1971 and 1976 can be gained by deflating the estimates given in Chapter 3 by the extent to which actual employees in the Area in 1961 fell short of the estimate obtained by using British participation rates. Employees in the Area in 1961 were 90.2 per cent of this estimate. Using this percentage as a deflating factor, the working population projections become 54,887 in 1971 and 53,708 in 1976. It is against these targets that the employment projections should be viewed. The problem of accommodating the proposed 50,000 immigrants can then be discussed in the light of the findings.

### *The projections*

4.26. Four methods of projecting employment have been used:

1. On the assumption that employment growth or decline continues in the future at the same rate as it has changed in the past; projections are made using these rates. This is the simplest and crudest projection of all.
2. On the assumption that industries in the Area will change at the rates predicted for British industries in the National Plan; projections are made using these rates.
3. The third method is a hybrid; it involves varying the National Plan predictions by the extent to which, in the past, the Area's rate of change has varied from the national rates of change and applying these weighted predictions to the employment structure in the Area.
4. The fourth method uses the employment predictions for Great Britain up to 1975 made by Mr. Beckerman.<sup>(1)</sup> These are used in the same way as the National Plan predictions in 2 above.

### *Projections using past rates of change*

4.27. Since 1951 employment in the Area has been increasing by 0.5 per cent per annum.<sup>(2)</sup> If this rate were to continue into the future, total employment would be 58,908 by 1971 and 60,394 by 1976. These predictions, however, are for the Area including South Queensferry, and some deduction must be made from these estimates in order to make the predictions compatible with the projections of working population. The only detailed information available about South Queensferry refers to 1964, when it contained 3.4 per cent of total employees. Assuming the same percentage will apply in 1971 and 1976, the predictions for the Survey Area become 56,905 and 58,341 respectively.

### *Projections using the National Plan estimates*

4.28. The National Plan gives figures for expected rates of growth by Ministry of Labour

Order for Great Britain. It is intended to use these predictions on the Orders in the Survey Area. The use of these predictions in this way involves three assumptions:

1. That the overall target for growth (25 per cent between 1964 and 1970) is, in fact, attained in the economy as a whole.<sup>(3)</sup>
2. That the Orders in the Area experience a similar rate of growth as the Orders at the national level.
3. That the composition of Orders in the Area, in terms of Ministry of Labour Minimum List Headings, is the same as Orders in Great Britain. In some Orders this is obviously not the case. For example, it will be seen that the National Plan anticipates the Ministry of Labour Order No. 5 (metal manufacture) to grow, in terms of employment, at 0.3 per cent per annum. But this Order in the Survey Area is largely made up of iron castings, much more so than the national Order, and the National Plan expected iron castings to decline slightly between 1964 and 1970.

4.29. Accepting these assumptions for the present, Table 4.9 shows the projected employees, on the basis of National Plan estimates, up to 1970. The National Plan figures have also been extended a year in order to give an estimate for 1971 and then further extended to 1976. The estimates are for employees in the Area, excluding South Queensferry.

### *The modified National Plan projections*

4.30. Because of the assumptions involved in using the pure National Plan predictions, it was decided to try to devise a measure which, though using the National Plan as a base, removed to some extent the assumptions which have been mentioned above. One such possible measure is to adjust the National Plan estimates by the extent to which the various industrial sectors in the Area had exceeded or fallen short of past employment changes in Great Britain for the same sectors. Such a measure would reduce the importance of assumption 2 above and also indirectly reduce the other two assumptions. It would not, however, allow the complete removal of the assumptions. A weighting system of the type used here can only shift the predictions in what is probably the right direction, but not necessarily by the correct amount.

4.31. The actual method of calculating the weights is straightforward. As well as predicting rates of change by Ministry of Labour Order between 1964 and 1970, the National Plan also gives by Order the annual rate of change in Great Britain between 1960 and 1964. These

<sup>(1)</sup> W. Beckerman and Associates, *The British Economy* 1975, National Institute of Economic and Social Research.

<sup>(2)</sup> This is the geometric rate of growth between 1951/52 and 1963/64.

<sup>(3)</sup> It now seems unlikely that the National Plan targets will be fulfilled by 1970. Nevertheless its use here is still valid in so far as it gives the best indications available of future relative rates of growth in the various industrial groups.

**TABLE 4.9**  
*Employees in the Survey Area in 1971 and 1976*  
*on the basis of the National Plan estimates*

Order	Average Annual Percentage Change 1964-1970	Employees 1964	Estimated 1970 Employees	Estimated 1971 Employees	Estimated 1976 Employees
1. Agriculture, forestry and fishing . . . . .	-2.7	607	501	482	376
2. Mining and quarrying . . . . .	-3.1	1,526	985	890	279
3. Food, drink and tobacco . . . . .	-0.1	956	990	989	968
4. Chemicals and allied industries . . . . .	—	6,720	6,720	6,720	6,720
5. Metal manufacture . . . . .	+0.5	8,917	9,994	10,025	10,170
6. Engineering and electrical goods . . . . .	+2.5	528	606	619	694
7. Shipbuilding and marine engineering . . . . .	-1.0	688	656	649	630
8. Vehicles . . . . .	-1.2	932	863	851	788
9. Metal goods not elsewhere specified . . . . .	+0.9	946	997	1,006	1,051
10. Textiles . . . . .	-1.6	480	439	431	394
11. Leather, leather goods and fur . . . . .	-5.4	—	—	—	—
12. Clothing and footwear . . . . .	-1.1	8	6	7	7
13. Bricks, pottery, glass, cement, etc. . . . .	+0.9	2,153	2,269	2,289	2,392
14. Timber, furniture, etc. . . . .	+0.1	1,659	1,669	1,671	1,677
15. Paper, printing and publishing . . . . .	+1.5	1,606	1,808	1,837	1,976
16. Other manufacturing industries . . . . .	+2.0	51	57	59	65
17. Construction . . . . .	+0.9	5,097	5,277	5,322	5,563
18. Gas, electricity and water . . . . .	+1.7	682	754	767	835
19. Transport and communications . . . . .	-1.0	4,391	4,226	4,177	3,929
20. Distributing trades . . . . .	+0.1	5,106	5,157	5,142	5,182
21. Insurance, banking and finance . . . . .	+2.2	540	548	629	702
22. Professional and scientific services . . . . .	+3.0	4,162	4,965	5,115	5,827
23. Miscellaneous services . . . . .	+0.8	3,576	3,748	3,776	3,926
24. Public administration . . . . .	+0.9	1,649	1,738	1,755	1,832
TOTAL . . . . .		34,001	34,963	35,204	36,062

rates of change have been applied to employees in the relevant industries within the Area for the year 1960. The application of the British rates of change to the Area's 1960 industrial structure allows us to make an estimate of what employment would have been created by 1964 in the Area if the various industries had enjoyed the British rates of growth for that period. These estimates by Order of what would have been are then compared with the actual situation in 1964, and an index number is calculated showing the extent to which actual employees in the Area fell short of or exceeded what should have been the position on the basis of British rates of growth. This index number is used as a weight. Table 4.10 gives the detailed results. The area considered is the Survey Area and excludes South Queensferry.

#### *Projections using the Beckerman estimates*

4.32. In Mr. Beckerman's book "The British Economy in 1975", tables are given showing the percentage rate of change expected for various industry groupings between 1960 and 1975. These percentage expectations have been applied to employees in the Area for 1960. The assumptions involved in the use of the pure National Plan figures apply also to this method.

4.33. Details of the projections are shown in Table 4.11. These projections are for the Area inclusive of South Queensferry. On the assumption that the area of South Queensferry takes the same percentage of employees in 1975 as it did in 1964 (3.4 per cent), the projected total can be reduced by this proportion in order to

TABLE 4.10

*Employees in the Survey Area in 1971 and 1976  
on the basis of modified National Plan estimates*

Order	National Plan annual rate of change 1960-64	Employees, 1960	Estimated 1964 using G.R. rates 1960-64	Actual employees 1964	Weight	Estimated 1971 without weights	Estimated 1971 with weights	Estimated 1976 without weights	Estimated 1976 with weights
1. Agriculture, forestry and fishing . . . . .	-2.8	595	525	607	115.6	482	557	578	487
2. Mining and quarrying . . . . .	-3.7	2,336	1,968	1,526	77.5	890	690	279	216
3. Food, drink and tobacco . . . . .	+0.1	990	998	996	100.3	989	992	985	988
4. Chemicals and allied industries . . . . .	-0.7	6,589	6,405	6,720	104.9	6,720	7,051	6,720	7,051
5. Metal manufacture . . . . .	—	10,908	10,908	9,817	90.0	10,023	9,021	10,170	9,133
6. Engineering and electrical goods . . . . .	+1.8	474	509	528	103.7	619	642	694	720
7. Shipbuilding and marine engineering . . . . .	-5.9	762	565	699	123.7	649	806	610	755
8. Vehicles . . . . .	-1.0	811	779	932	119.6	851	1,018	788	943
9. Metal goods not elsewhere specified . . . . .	+0.9	1,241	1,284	966	73.7	1,006	741	1,051	774
10. Textiles . . . . .	-2.0	513	471	480	101.9	481	489	594	402
11. Leather, leather goods and fur . . . . .	-0.3	—	—	—	—	—	—	—	—
12. Clothing and footwear . . . . .	-1.1	6	6	8	133.3	7	9	7	9
13. Bricks, pottery, glass, cement, etc. . . . .	+0.9	2,036	2,107	2,153	102.2	2,289	2,359	2,392	2,444
14. Timber, furniture, etc. . . . .	-0.1	1,782	1,777	1,659	93.4	1,671	1,560	1,677	1,566
15. Paper, printing and publishing . . . . .	+1.1	1,622	1,693	1,656	97.8	1,837	1,797	1,976	1,983
16. Other manufacturing industries . . . . .	+1.6	22	23	51	221.7	59	131	65	144
17. Construction . . . . .	+3.6	4,128	4,847	5,007	115.2	5,322	6,130	5,583	6,407
18. Gas, electricity and water . . . . .	+2.0	699	756	682	90.2	767	692	635	753
19. Transport and communications . . . . .	-0.2	4,429	4,394	4,501	102.4	4,177	4,279	5,929	4,025
20. Distributing trades . . . . .	+1.4	4,823	5,085	5,106	101.4	5,142	5,215	5,162	5,235
21. Insurance, banking and finance . . . . .	+3.3	476	540	540	100.0	629	629	702	702
22. Professional and scientific services . . . . .	+3.6	3,744	4,317	4,162	96.4	5,115	4,931	5,927	5,714
23. Miscellaneous services . . . . .	+1.6	2,992	3,186	3,576	112.24	5,776	4,238	3,926	4,407
24. Public administration . . . . .	-0.3	1,725	1,702	1,649	96.99	1,753	1,690	1,832	1,775
TOTAL . . . . .		53,697	54,290	54,001		55,204	55,602	56,062	56,535

TABLE 4.11

*Employees in the Survey Area in 1975  
on the basis of the Beckerman estimates*

Industry group	Estimated percentage change in employment 1960-1975	Employees 1960	Estimated 1975
1. Agriculture, forestry and fishing	-29.76	733	515
2. Coal mining	-45.81	1,540	835
5. Mining and quarrying	-19.44	794	640
4. Food processing	-3.0	514	499
5. Drink and tobacco	-5.12	937	889
6. Coke ovens, etc.	-21.05	2	2
7. Mineral oil refining	+25.0	1,099	1,374
8. Chemicals n.e.c.	+27.85	5,408	7,016
9. Iron and steel	-2.88	7,902	7,752
10. Non-ferrous metals	-8.27	2,926	2,684
11. Engineering and electrical goods	+11.96	474	531
12. Shipbuilding and marine engineering	-3.6	762	735
15. Motors and cycles	+13.73	723	822
14. Aircraft and railway rolling	-6.61	88	82
15. Metal goods n.e.c.	+2.35	1,241	1,270
16. Textiles	-10.6	514	460
17. Leather, clothing and footwear	-0.59	7	7
18. Building materials	-6.37	2,046	1,912
19. Pottery and glass	-0.69	10	10
20. Timber, furniture, etc.	+0.96	1,813	1,830
21. Paper, printing and publishing	+10.44	1,626	1,796
22. Other manufacturing industries	+19.73	22	25
23. Construction	-2.06	4,539	4,446
24. Gas	+55.47	183	285
25. Electricity	+40.57	445	626
26. Water	—	71	71
27. Transport and communications	-2.07	4,586	4,493
28. Distributing trades	+22.41	4,868	5,959
29. Services n.e.c.	+10.27	7,598	8,158
30. Public administration, defence and other services	+20.87	2,015	2,436
<b>Total</b>		<b>55,448</b>	<b>58,160</b>

give an estimate of employees at that date in the Survey Area. Subtracting 3.4 per cent for South Queensferry, the total employee estimate for the Survey Area in 1975 becomes 56,183.

### Summary and conclusions

4.34. The four projection methods used above give the following estimates of employees in the Survey Area in 1971 and 1976:

TABLE 4.12

#### Summary of employment projections for the Survey Area

Method	1971	1976
1. Simple projection on past trends	56,905	58,341
2. Pure use of National Plan estimates	55,204	56,062
3. Modified National Plan estimates	55,602	56,533
4. Use of the Beckerman predictions	No estimate	56,183*

\* This estimate is for 1975.

4.35. It is not possible to say which is the best estimate, but the modified National Plan projections, at least in terms of logic, are probably the more justifiable. For the purpose of comparing the employee projections with the working population projections, however, it is probably best to use the minimum and maximum projections for each of the two years. Thus, by 1971 employment opportunities, other things being equal, will be at least 55,204 and at the most 56,905. In 1976 the opportunities will be at least 56,062 and at most 58,341.

4.36. It will be remembered that, using what were tantamount to British participation rates, the working population was estimated to be 60,850 by 1971 and 61,760 by 1976.<sup>(1)</sup> The modified estimates of working population suggested in paragraph 4.25 were 54,887 in 1971 and 55,708 in 1976. Using the unadjusted working population projections, it is quite easy to see that changes in employment opportunities are not going to be sufficient to absorb the changes in working population. With the adjusted working population projections, however, the working population would be fairly easily absorbed. It would be absorbed even using the minimum employment projection figures; the Area would, in fact, be slightly short of labour. However, the figures also show that the expansion of indigenous industry will not be sufficient to absorb large numbers of immigrants.

4.37. In the light of these findings, the third Section below discusses the problems and feasibility of bringing 50,000 immigrants into the Area.

## III

### Employment for the Immigrant Population

#### Number of jobs required

4.38. The conclusions of the employment projections are that if present participation rates are maintained there should be no difficulty in employing the natural increase in working population. The aim of the policy for the Area, however, is to introduce 50,000 people as immigrants by 1986. In Chapter 3 it is estimated that if these people start to arrive in 1971, the total immigrant population through natural increase would be 61,960 by 1986. Using participation rates at present existing in the Area, the immigrant working population would be 24,221 by 1986. Our employment projections show that there will be virtual equality between indigenous working population and employment opportunities in 1971 and 1976. If this were to continue up to 1986, it means that the majority of this 24,221 increase in working population will have to be employed by industry which is new to the Area.<sup>(2)</sup>

4.39. Taking this figure of 24,221 new jobs required between 1971 and 1986, and assuming that when a new firm enters the Area it does not grow, then new jobs must be created in the Area at the rate of 1,615 per annum.<sup>(3)</sup> The assumption that industry, once it moves into the Area, does not grow, is unrealistic. If it is assumed that industry arriving in the Area grows, after its arrival, at a rate of three per cent per annum, and also that the inflow of new industries is spread evenly over the 15 years from 1971 to 1986, then an inflow of new industry to the extent of a little over 1,200 jobs per year will be required in order to employ the immigrant working population. Further, this figure takes no account of the local multiplier effect.<sup>(4)</sup> It is difficult to know what the value

<sup>(1)</sup> The rate of change of working population accelerates considerably after 1976. The working population for 1986 is estimated at 67,845.

<sup>(2)</sup> The simple projection, based on past trends, and the modified National Plan projection, weighted according to past performance, already include immigrant industries in so far as such industries have contributed to the employment performance of the existing structure. The new industries discussed in this Section are additional to those allowed for in the projections and the estimate of new jobs required here refers solely to what will be required for the immigrant population.

<sup>(3)</sup> The number of immigrants seeking work each year will not in fact be the same over the whole period. The planned immigration is on a straight line basis but with the passage of time an increasingly greater proportion of the immigrants will be within the working age group. The annual average of jobs required between 1971 and 1976 will be 1,438; the corresponding figure for the period 1976-1981 will be 1,568, and for 1981-1986 it will be 1,838.

<sup>(4)</sup> In simple terms, the increase in total employment resulting from the introduction of a new firm is greater than the number directly employed by that firm. The firm will also add indirectly to the number employed by its demands on service and other industries in the Area. Further, assuming that the incomes of its employees constitute a net addition to the income of the Area, demand and employment will be increased by the extent to which this income is spent on the products of the Area.



of the multiplier effect is likely to be, but it probably lies between 1.5 and 2. Thus, for every new job created in the Area, other jobs are created by the spending of the employees and of the firm itself. The value is probably closer to 2 than 1.5, but even on the assumption of a value of 1.5, the number of new manufacturing jobs required to employ the immigrant population is reduced to 800 per annum.

3.40. In brief, there should be no great difficulty in meeting the targets set for the Area. The present industrial structure will absorb the natural increase of the working population. In order to absorb the immigrants, taking into account the multiplier effect, there will need to be about 800 new manufacturing jobs per annum. Even this figure may be on the high side in so far as the growth in non-manufacturing employment may be greater than it allows for. This is particularly likely to be the case with the service industries, although there will obviously also be growth in the construction industry. In the service sector there are two factors which are likely to increase the proportion of employees required. Firstly, it is clear from Table 4.1 at the beginning of this Chapter that service provision in the Area at present is below the average and, as the Area develops, some of this deficiency should be made good. Secondly, as the Area grows there should be some further expansion in the proportion of employees required by this sector, because a larger community can support a higher standard of service provision. In consequence, the number of new manufacturing jobs required to absorb the planned growth of the Area may be well below 800 per annum. This represents a fairly small proportion of the new manufacturing jobs that Scotland can expect as a result of regional policy.<sup>(1)</sup>

### *The supply of labour*

4.41. The main fear should be not that the jobs will not be forthcoming but that a very tight labour market may develop in the Area. The Area will not fulfil itself as fast as it could if the labour market becomes too tight. In point of fact, the Area is fortunate in that there exist a number of factors which would cushion it if, in any particular year or series of years, the demand for labour began to exceed what the Area could normally supply.

1. Travel-to-work. The labour market within reasonable travel-to-work distance is very large. There is already a considerable daily inflow into the Area (see Chapter 6). This flow would undoubtedly increase if tight labour markets were to develop. At the same time, the outflow would diminish, again easing the labour market.
2. Unemployment and participation rates. These are the conventional cushions to a tight labour market. For males, the Area's unemployment rates and participation rates are about the national average, and one could not expect much change in response to tighter labour markets. With females, the picture is quite different.

Unemployment rates are high and participation rates low relative to the national average. These would represent a considerable cushion to any tightening of the labour markets.

3. Declining industries. These are already shedding labour, and with tighter labour markets and increased competition for labour they would undoubtedly release even more. Some of the firms in these industries may go out of business if the pressure becomes very great. Harsh as this may seem, it follows inevitably from the fact that regional policy is not now seen merely as a matter of creating jobs but of creating high income jobs. All the evidence suggests that there is no shortage of employment in Scotland, but that there is a shortage of highly paid jobs.

All these factors are possible cushions if the labour market threatened to get too tight. With proper phasing of the inflow of immigrants and firms this should not happen. The body or bodies responsible for the running of the Area must keep a careful eye on the labour market position and be prepared to make any changes required, including, if necessary, the speeding up of the immigrant inflow.

### *Advantages of the Area for industry*

4.42. To suggest that the danger is likely to be shortage of labour rather than of jobs is to imply that little difficulty is likely to be encountered in attracting firms to the Area. This approach reflects both the relatively small proportion of new manufacturing jobs required and the belief that the Area has, or will have, most of the requirements of a firm seeking a new location.

4.43. An important attraction to industry is the Area's proximity to a number of ports and its good rail and road links with the rest of Scotland and England. Essential services already exist and others will develop. The more sophisticated requirements of people and industry which are not provided for in the Area are available in Glasgow or Edinburgh—both within reasonable distance. The physical planning proposals for the Area, contained in Volume II, would provide a first class environment both from the viewpoint of economic development and as a place in which to live. There is a large potential labour market in the Area, particularly for female-employing industries. Lastly, there is an adequate supply of land for industrial sites.<sup>(2)</sup>

<sup>(1)</sup> The Scottish White Paper envisaged the creation of 50,000 new manufacturing jobs in the seven year period 1954-1970—equivalent to about 7,000 per annum.

<sup>(2)</sup> The proposed new industrial sites discussed in Volume II have a total area of 2,250 acres. Assuming an average of 20 persons per acre, this area would be sufficient for 45,000 employees. The expansion of the indigenous working population as well as the inflow of immigrant workers will amount to slightly less than 30,000 employees by 1986. In brief, there will be no shortage of industrial land in the Area.

## *Policies to attract industry*

4.44. While the prospects for the Area are potentially good because of the advantages indicated above, this does not mean that no positive effort is needed to attract industry. Indeed, the case for positive effort is strengthened by recent changes in regional policy and the system of incentives now available. Hitherto, growth areas enjoyed a comparative advantage over other development districts in the attraction of industry. Assistance was geared to the level of unemployment and was discontinued when unemployment fell below 4.5 per cent, except in the growth areas, where its continuance was guaranteed. Under the new policy of incentives, assistance is now available to much larger development areas irrespective of the level of unemployment. The Scottish Development Area covers the whole of the country, with the exception of Edinburgh, Leith and Portobello. In consequence, so far as the new incentives are concerned, the growth areas are competing for new industry on an equal footing with virtually the rest of Scotland, as well as with other development areas. This means that, if the industrial potential of the Survey Area is to be realized, its existing advantages must be supplemented by a positive policy to attract industry. Two broad lines of policy are recommended. Firstly, efforts should be made to explain to potential industrialists the advantages of the Area. This should be done not only by conventional advertising but by ensuring that those industrialists who are only vaguely thinking about a new location know what the Area has to offer. In American terminology, a strong effort should be made to sell the Area. Secondly, when once the industrialist has made the decision then everything possible must be done to ensure that his difficulties are overcome—not only during the settling-in period but well after this. Such help is good for the Area. It gets production started more quickly and gives a faster rate of growth to the firm than might otherwise have been the case. It also has the advantage that it will encourage other industrialists seriously to consider the Area. There is no better publicity for an area than that from industrialists already there. On the other side of the coin, discontented industrialists are the worst possible advertisement for an area.

4.45. In this, as in other policy recommendations in this Report, the underlying assumption is that the Survey Area must be regarded as a single unit. It has already been made clear in Chapter 1 that the scale of effort and the degree of co-ordination required to fulfil the recommendations constitute a task for which the present local authority structure is inadequate. It is hardly surprising that a structure created largely in the 19th century should prove inadequate to the tasks of the late 20th century. The case for reform is particularly strong in relation to policy for industrial development. Only with a strong and unified policy for the Area as a whole is there hope of achieving the potential for industrial development. At a simple level, resources should be concentrated on selling the Area as a whole rather than

dispersed in competitive efforts to sell the constituent parts.

## *An industrial development board*

4.46. It is suggested that the implementation of industrial policy, whether within the framework of the existing structure of local government or of a reformed structure, would require the creation of some form of industrial development board. The task of such a body would, of course, be immeasurably greater in the absence of reform if the necessary degree of co-ordination of effort is to be achieved. In either case, the board's main function would be the implementation of the policy outlined in paragraph 4.44. It would keep under observation the general industrial policy of the Area and the extent to which industrial development was fulfilling the requirements of the plan. Further, it would have the task of attracting new industry and assisting the industry already in the Area. The assistance would primarily take the form of acting as intermediary between industry and those bodies with which industrialists need to deal. It would put industrialists in touch with organizations which would meet their particular needs and would attempt to speed up the required decisions and actions by these organizations. Such a service would be particularly useful for the small and medium size firms which often show a surprising ignorance of the assistance (financial and technical) for which they are eligible or which is available. Many firms are not only ignorant of the possibilities but, even with such knowledge, find difficulty in knowing how to exploit them. Here the board could assist industrialists by providing information and by advising on the best way to approach the relevant bodies. The board would also keep a careful eye on the proceedings of such contacts and, where possible, try to speed things up. The mere existence of such a board would at least show industrialists that the Area is industry-minded.

## *4.47. Summary*

1. The existing industrial structure of the Area shows specialization in a narrow range of industrial groups, of which the predominant ones are castings and chemicals. The former is declining, or at least not growing, while the latter is highly capital intensive and therefore capable of considerable expansion without a proportionate expansion of employment.
2. The number employed in the service industries is well below the average for both Scotland and Great Britain.
3. There is a shortage of employment for females, as is revealed both by the unemployment rates and by the participation rate.
4. Various projections show that the likely growth of the existing structure should be adequate to absorb the estimated increase in the indigenous working population.
5. The planned immigration of 50,000 by 1986 will mean an increase in the working

- population of 24,221 by that date. Employment for these will require to be found largely by the introduction of new firms.
- Making allowance for the fact that the new firms will themselves grow and will have a multiplier effect on employment, the number of new manufacturing jobs required per annum is likely to be about 800. This is not a high proportion of the 7,000 new manufacturing jobs per annum which it is hoped will be created in Scotland as a result of regional policy.
  - An improvement in the scope and standard of services in the Area, necessary to the expanded community, could reduce still

further the number of manufacturing jobs required.

- The Area has a number of advantages which makes it potentially attractive as an industrial location.
- Positive efforts must be made to attract industry and foster industrial development if this potential is to be realized.
- Some form of industrial development board is recommended to implement a policy designed to promote industrial development. The task of such a body will be immensely more difficult if there is no reform of the existing structure of local government.

## APPENDIX

### The Iron Castings and Chemical Industries

4.48. In the preceding Sections the industrial structure and its prospects have been analysed largely in quantitative terms. It is helpful if such analysis can be augmented by some qualitative assessment of the industries concerned. This it is proposed to attempt here for the two industries, iron castings and chemicals. These industries occupy an important position in the present industrial structure of the Area, and the course of their future development must be an important factor in the assessment of employment prospects.

The information for these rather brief descriptions of the two industries has been gathered from an industrial questionnaire which was circulated to firms in the Area and from interviews with some of the firms.

#### Iron Castings

4.49. The output of the castings industry can be divided into two broad groups—engineering castings and domestic castings. The term "Engineering Castings" is self-explanatory. "Domestic Castings" require a little more explanation. Domestic castings include a wide range of goods, but can be crudely divided into three types. Firstly, piping—i.e., water pipes, rainwater pipes, soil pipes and smoke pipes. Secondly, heating apparatus. This includes stoves, grates, ranges and cooking apparatus generally. Thirdly, there are bathroom fittings. These are cisterns, baths, hollow-ware and sanitary fittings. The castings industry in the Area is predominantly engaged in the production of domestic castings.

4.50. The Area is the centre of the Scottish castings industry, containing 50 per cent in terms of employment. About 14 per cent of total employees and 50 per cent of manufacturing employees in the Area are engaged in castings, principally in Falkirk and Bonnybridge.

4.51. The industry has declined through much of the post-war period. Table 4.13 on next column shows employment in castings from 1951 to 1954.

4.52. The heaviest decline of the industry in this period was in the early 1950s. The period after 1957 saw easier times, though the industry, with occasional good years, continued to decline. The decline of the castings industry has not, of course, been limited solely to the Survey Area. The industry has declined in Scotland generally and in Great Britain as a whole. The decline in employment has been more severe in

TABLE 4.13

*Employees in iron castings industry\* in the Survey Area (including South Queensferry)*

1951—11,214	1956—9,381	1961—7,706
1952—11,347	1957—8,157	1962—7,620
1953—10,572	1958—7,774	1963—7,458
1954—9,967	1959—8,080	1964—7,631
1955—10,156	1960—7,981	

\* The industrial reclassification of 1958 makes for difficulty in compiling a series over any length of time. Minimum List Heading 313 has been used in the post-1958 period and Minimum List Heading 42 in the years before this date.

the Survey Area than in Great Britain, but slightly less than in Scotland.

4.53. The decline of the castings industry in the Area and the continued expansion of other industry has inevitably meant that the proportion of employees in the Area engaged in castings has continued to fall. In 1951, 21.4 per cent of employees were in castings. By 1960 it was 14.4 per cent, and in 1964 the proportion was slightly lower at 13.6 per cent.

4.54. The faster rate of decline of the industry in the Area, in comparison with the country as a whole, would appear to be largely explained by the fact that for the most part the Area is still involved in the declining sector of castings—that of domestic castings. The industry in the Area has remained very much a stove, grate and bath industry, while the big opportunities for expansion have been in engineering castings. The market for domestic castings has been under pressure for a number of reasons and it would be too optimistic to think that these pressures have yet been expended.

4.55. There are two main sets of factors which have reduced the market for domestic castings:

- Pressure has been placed, particularly on the domestic side, by the use of substitute materials which are often cheaper, more attractive and lighter than castings. Plastics and stainless steel have been the main competitors.
- A number of changes in attitudes, fashions, and economic conditions have reduced the demand for domestic castings. This is a separate argument from the use of substitute materials. Showers are to some extent replacing baths. Those baths now installed are smaller. New houses have only a single grate, if any at all—a different situation from the pre-war period and,

to some extent, the early post-war years, when houses had two or more grates. Institutions took a large proportion of domestic castings output. The use of the casted stove in the civil service was once common and is now rare, while the abandoning of national service, and the more modern living in military service today, has further reduced the demand for stoves.

4.56. A Ministry of Labour survey of the castings industry in the Area in 1964 estimated that the average house at that date contained, in terms of weight, only half the castings of a pre-war house. Since 1954 there have undoubtedly been further declines.

4.57. Although engineering castings are the expanding sector of the industry, the picture is not completely gloomy for domestic castings. There are some firms in the Area which, through good design, dynamic management, efficient marketing and production methods, have done very well in the domestic field and will undoubtedly continue to do so. Many firms, however, are now moving, but only slowly, into the production of engineering castings.

4.58. This slowness of response is well illustrated by the reaction to the demands for engineering castings of the motor industry recently located in Scotland—a move which at first sight would seem to offer great opportunities to the Area's castings industry. These opportunities have for the greater part not been exploited. The Scottish vehicle manufacturers still import 90 per cent of their castings components from outside Scotland. This figure excludes the supplies from foundries belonging to the motor manufacturers. The reasons for the lack of successful response to the opportunities offered by this new market are difficult to pinpoint. Some firms in the Area have tried to enter the market but failed to get a foothold. Others have actually gone into the market and then withdrawn. Others have not even tried. The general attitude among firms is that the car manufacturers are too keen about prices, margins are slight and that to supply the demand would require a considerable capital outlay. It is also felt that the car companies are too variable in their ordering. It is difficult to know where the real reasons lie. It is, however, interesting to note that one of the few firms which seems to have made a success of supplying the car industry is one which is a subsidiary of a Midlands castings firm which is itself supplying the car industry. The management is well used to dealing with car producers. There has been some capital expansion, though the plant is by no means mechanized and still only involves itself in hatch production. This firm has grown considerably in output and employment. Its main problem is not orders but shortage of labour.

4.59. Though the production of engineering components for the car industry has had a poor response in the Area and Scotland generally, the market for engineering components is by no means limited to supplying the car industry. There has been a considerable growth in the Scottish market for general engineering components—estimated at seven per cent during 1963-64. Recently published figures which show that only 50 per cent of Scottish consumption of engineering castings are being met by Scottish supplies indicate the opportunities which still remain.

4.60. Though it is true that some firms are moving into engineering castings, the response has been disappointingly slow. The reasons for this poor response are varied. In some cases firms are doing very well in the domestic field and naturally have little or no inclination to switch production. Others, however, have experienced considerable falls in employment and a whittling of profits but still remain, or move very slowly out of domestic castings. It is

true that engineering castings often require more detail, more precision and use of a higher quality metal (which might require new furnaces). Apart from furnaces, new capital equipment is sometimes, though not always, required. Firms in the Area are, of course, eligible to apply for assistance for any expansion which they undertake. In the case of some of the firms, the capital equipment is often already there and could be quite easily switched to working on the engineering iron. In many cases it seemed that the reluctance to move into engineering castings was for two not entirely unconnected reasons. Firstly, a rather blind optimism that things will pick up again. This was based either on the feeling that a new product would once more revive the industry—solid fuel boilers were a case in point—or else a feeling that improved castings could once more oust the synthetic materials which had usurped the position of cast iron in many products. Such attempts to recoup and recover their position, however, seemed unlikely to be on a sufficient scale. Secondly, the controlling powers of some of the firms appeared to be out of touch with what was happening or too apathetic to do anything about it.

#### *The future of the castings industry in the Area*

4.61. As usual, predictions are not as all easy to make and can too easily turn out wrong. Predictions depend on a number of factors which can easily change. Markets change, required adjustments may come easier and faster than expected, unanticipated pressures may force changes, substitutes may be developed faster, material prices may move advantageously. It is against these qualifications that the assessment offered here must be considered.

4.62. In domestic castings the future prospects seem poor except for a few firms who through good design, dynamic management, and efficient production methods will be able to hold their position and even expand it. For many of the domestic castings firms the development of more substitutes, both materials and products, is likely to make their position even more difficult. Profits in many of these firms are already squeezed low as material prices rise, while the weakness of the market prevents any corresponding rise of price of finished products. Some of these firms have already made considerable capital outlays in an attempt to improve their position, but much of this new capacity is still very much under-utilized. The additional financial burden of this capital equipment makes their position still more vulnerable, particularly as they are facing competition from smaller and less capitalized foundries. Wages can be expected to rise in the future as a result of pressures both from within and outside the castings industry. All these factors suggest that the prospects for the domestic castings sector of the industry are poor.

4.63. In contrast, the outlook for engineering castings is undoubtedly very bright. The market in general is expanding rapidly and the considerable leeway to be made up in the Scottish market should provide the opportunity for expansion in this sector of the Scottish industry. It is true that in some cases further capital investment may be required as the cost of moving over to this sector from the domestic sector, but the availability of Government assistance should ease the financial difficulties involved in this.

4.64. The National Plan anticipated that employment in the castings industry would decline slightly between 1964 and 1970. Because of the structure of the industry in the Survey Area, however, employment is likely to decline faster than in the country as a whole. This is due to the predominance of domestic castings. In the last resort, the extent of the decline must depend on how far and how fast the industry of the Area moves into engineering castings.

## Chemicals

4.65. The industry for which the Area is best known is, undoubtedly, the chemical industry. Though the industry did exist in the Area prior to the Second World War, it is only in the post-war period that it has assumed large proportions and undergone considerable expansion. The chemical industry as a whole now employs 6½ thousand people in the Area, of which just over a thousand are in Ministry of Labour Minimum List Heading 262, i.e., mineral oil refining. The rest are in Minimum List Headings 271 and 273, i.e., chemicals, dyes, explosives and fireworks. Almost 25 per cent of total manufacturing employees in the Area are now engaged in chemical production.

4.66. Table 4.14 shows employment in chemicals and refining respectively since 1952. Employment on the refinery side has been fairly static since 1952, though of course output has expanded considerably. It is on the non-refinery chemical side that there has been a large expansion in employment—a doubling over the 15-year period. In terms of the structure of employment, the industry is predominantly a male employer. About three-quarters of employees in the industry are males.

TABLE 4.14

*Employees in the chemical industries\* in the Survey Area, 1952-1964*

Year	Minimum List Headings 271 and 273	Minimum List Heading 262
1952	5,319	1,150
1953	5,154	1,300
1954	5,214	1,613
1955	5,325	870
1956	5,868	1,130
1957	4,298	1,045
1958	4,540	1,088
1959	4,635	1,095
1960	5,335	1,099
1961	5,768	1,102
1962	5,512	1,111
1963	5,946	1,105
1964	5,489	1,064

\* Minimum List Headings 271 and 273 are chemicals, dyes, explosives and fireworks. Minimum List Heading 262 is mineral oil refining. The pre-1958 classification period uses Minimum List Headings 31 and 33 for the first group 56 for the second.

4.67. The past rates of employment growth of the industry have been faster than the national average for the same industry. While employment in the chemical Order declined nationally between 1960-64, there was a slight expansion by the industry in the Area. The National Plan anticipated no employment change in the Order between 1964 and 1970, but if the industry disobeys the national predictions in the same way that it did between 1960 and 1964 one could expect an even faster rate of growth 1964-70 than 1960-64. This point comes out in the quantitative predictions of the main Chapter.

4.68. A large part of the expansion of the industry has undoubtedly been due to the existence of the refinery. Many of the new firms have been heavy users of refinery output, and in many cases the refinery had part-ownership in the firms. This point is not

true of all the chemical firms which have recently come into the Area. Some have been quite independent financially of the British Petroleum complex and make but slight use of refinery output. What they did find at Grangemouth were locational characteristics which satisfied their requirements.

4.69. The fact that the industry has in the past grown faster than the national average indicates that the Area is a good location for the industry. Such a position augurs well for the future, as the attractiveness of an area for an industry does not often change for the worse over a short time; indeed, the attractive strength often grows as the complex becomes larger and greater possibilities for interdependence exist between the groups within the industry.

4.70. The requirements of the chemical industry are well fulfilled in the Area. These requirements include proximity to feedstock and materials, good communications to and from destinations within and without the United Kingdom, plentiful supplies of cheap water and availability of flat land. Naturally, not all these locational factors have been or will be operative all the time or at the same intensity. Proximity to feedstock has not been of great importance to some of the chemical firms which have recently come into the Area. In these cases the other factors were more important, although proximity to material suppliers, no matter how small a part these play in total production costs, is always more convenient than being at a distance. On the whole, it seems likely that any new chemical firms coming into the Area will be increasingly in sectors away from the production of basic chemicals which at present predominate in the Area. They are likely to be in the more labour intensive lighter chemical sector. For these kinds of firms there is a further advantage in the Area—the availability of considerable supplies of female labour.

4.71. The point has often been made that the chemical industry is not a good industry to attract to the development areas because it is not labour intensive. For three basic reasons this view is rejected here. Firstly, there is the obvious point that any industry is better than no industry. Secondly, although it is true that some sectors of the industry are not labour intensive, the impact of an industry on a region is not simply through the labour it employs but also on the other demands that it makes on the resources of the region. Chemical plants make big demands on the region during the construction period, but during their operations they also make considerable demands on the service sectors, most of which are provided by the region, including water, gas, electricity, maintenance and local professional services. Further, their rateable value is often very high. Thirdly, when once the basis of the industry has been laid down—this being very capital intensive—the area becomes attractive for the non-capital intensive chemical sector. The future should see more of this kind of industry moving into the Area.

4.72. In brief, the prospects for the chemical industry in the Area are that it will continue to grow at least as fast as in the past, both as a result of the expansion of the existing industry and by the entry of new chemical firms. The requirements of the industry are well met in the Area and any chemical concern considering a new location would inevitably place the Area high as a possible location. Although there is no immediate prospect of any substantial addition to the oil-refining capacity of the Area, it is believed that this could be accommodated. If, in the longer run, such a development took place, this would reinforce the conclusions of this study and strengthen the attractiveness of the Area to the chemical industry.

## Provision of Commercial Facilities

D. R. DIAMOND

## I

5.1. The proposed growth of population in the Survey Area by 100,000 persons in 25 years, together with considerable physical redevelopment of the existing settlements, provides both an opportunity and a need to examine the provision of commercial facilities. The existing situation provides only a partial basis for an estimate of future needs, which has to be based very largely on anticipation of the way in which consumer habits and retailing technology will evolve over the next twenty years. Despite the difficulties to be overcome in such an exercise, it is very important to make an attempt to plan the future provision of commercial facilities so that the income and employment generating qualities of retail trading in the Survey Area are not dissipated, and also to ensure a successful physical arrangement of the facilities which will help the attraction of immigrants and contribute to the quality of the environment. Also, when this Survey was begun in October 1964, there were several shopping developments, including the town centres of each of the four burghs, in varying stages of completion. It is hoped that as a result of this regional study of shopping these rather unrelated efforts will be pursued in a more co-ordinated and therefore successful manner in the future.

5.2. The next twenty years are likely to witness just as much change in the character and pattern of shopping facilities as have the last ten. In the Survey Area change will occur, which is not only related to the broad social and economic trends affecting the whole country, but also as a result of local activity arising from the redevelopment and expansion of the urban areas. It seems sensible therefore to refer first to the changing national scene, and then to consider in its light the present situation within the Survey Area and the effect of the proposed expansion.

5.3. The method of assessing the volume of retail provision likely to be needed in the Survey Area in 1986 has been outlined by the author on two previous occasions.<sup>(1)</sup> In essence, it establishes first the relevant shopping population, secondly, estimates their volume of expenditure and, thirdly, relates this volume of sales to the floor area of shopping required to service it. The actual prediction of the level of expenditure up to 1986, and its composition, are

discussed in Appendix 1 to this Chapter, which also includes a forecast of the relationship between sales and floor area.

## II

## Trends in Retailing

5.4. Information on the present situation of the retail industry and the assessment of future trends contained in the National Plan (Cmd. 2764) does not differ substantially from the author's earlier account.<sup>(2)</sup> The importance of retailing as an economic activity is also stressed in the Scottish Plan (Cmd. 2864), where it states, "the distributive trades constitute the biggest single service industry sector, and so particular attention should be directed to efficiency and productivity in these trades". Although in 1965 employees in retail distribution in Scotland amounted to 10.1 per cent of total employment,<sup>(3)</sup> the same as in 1961, it is expected that the level of labour efficiency will increase in the future. Scotland in 1961 had a lower average turnover per employee than did Great Britain, £3,833 compared with £4,071, thus suggesting that there was already room for some improvement. If the general employment situation improves with further development of the Scottish economy, this will act as an incentive which will reinforce current government measures such as the Selective Employment Tax.

5.5. Rising labour efficiency will be accompanied by other changes in the volume and composition of retail sales which will be associated with an altering organizational structure and changing habits of consumers. The major element causing change in shopping habits is clearly a rising level of real income. This leads to a greater volume of retail expenditure per head, increasing ownership of refrigerators, cars, etc., and a changing pattern of expenditure. Increased competition in the retail trade associated with the abolition of resale price

<sup>(1)</sup> 1. D. R. Diamond and E. B. Gibb, "Development of New Shopping Centres: Area Estimation", *Scottish Journal of Political Economy*, IX (1962), pp. 130-146; 2. *Lithium Regional Survey and Plan*, Vol. I, H.M.S.O., Edinburgh, 1966, Chap. 11.

<sup>(2)</sup> See *Lithium Regional Survey and Plan*, op. cit., Vol. I, chap. 11, parts II and III.

<sup>(3)</sup> *Digest of Scottish Statistics*, No. 27, Table 39.

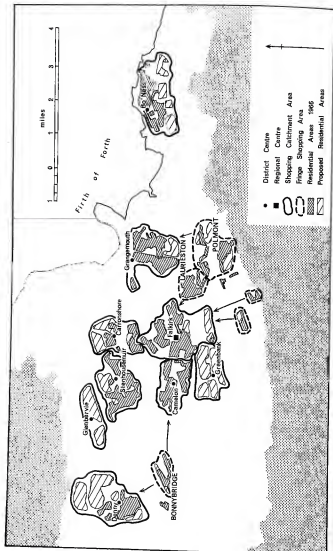


Diagram 3.5. District Shopping Patterns, 1965

maintenance and more advertising of retail products, in conjunction with changing shoppers' habits, is resulting in marked changes to the traditional shopping hierarchy of corner store, neighbourhood parade, suburban centre, town centre and city centre. The existing multiplicity of straggling shopping centres which exist in most medium and large sized towns (including the Survey Area) are faced with two problems. They are seldom suitable locations for new shopping development, because the limited trading area served by them cannot ensure sufficient trade for the modern store (with its greatly increased necessary minimum level of sales) to be viable. Also, the rising use of cars for shopping, especially one-stop, once-a-week shopping trips for the family's food supply, cannot be accommodated in a satisfactory manner. A week's supply of food for a family of four weighs on average about 60 lbs. and underlines the need to recognize car-shopping and make proper provision for it.

5.6. As the social and economic environment of shopping changes, a different pattern of shopping centres, which is better suited to the new conditions, will begin to emerge. In fact, many of the developments that have occurred since 1957 in British high streets indicate that this process has already begun. Thus, to take advantage of the opportunity for change which redevelopment and expansion in the Survey Area create, it is necessary to try to foresee the shape of the shopping hierarchy of the future so that the pattern which eventually emerges in the Survey Area is as satisfactory as local conditions will allow.

### III

#### The Future Shopping Pattern

5.7. Traditionally, the town centre has always been the most accessible part of the town and it has, therefore, attracted to it the services provided for the whole community. As population increased and towns grew in size, the centre expanded. Also, distance to the centre increased and eventually new shops opened in the newer residential areas to meet the demand especially for goods in daily use. Suburban centres occurred as soon as there was a sufficient hinterland of customers to support such shops. Shops selling specialist goods, not in almost daily demand and therefore requiring a larger hinterland, remained in the town centre. This distinction between convenience goods, which are purchased frequently from nearby shopping centres and are usually of low unit cost, and durable goods, which are purchased less frequently, usually involving a longer journey to acquire items of higher unit cost, has long been recognized. The concept of a hierarchy of retail centres is based on the two principles involved; first, that different shops (i.e. commodities) have different minimum levels of sales to make them viable (i.e. thresholds), and second, that the trader will attempt to be as near to his customers as possible so as to have as many customers as

possible for whom his store is the most convenient purchasing location.

5.8. The future retail hierarchy will be based on these same principles, but the changing social and economic conditions imply an alteration in threshold levels and hence force a new pattern to emerge. The increasing scale of efficient operation requires wealthier hinterlands, which are most readily achieved by extending existing hinterlands, and the increased price consciousness and mobility of the consumer implies the desire and ability to travel greater distances for shopping purposes. Bearing these concepts in mind, and examining recent trends in Britain and the United States, it becomes possible to outline the main levels in the shopping hierarchy as it may well be in about twenty years' time.

5.9. The lowest level of the hierarchy will be represented by the *local* centre. This future equivalent of the corner shop will provide maximum convenience for the surrounding residential population and will, in most circumstances, be within a short walk (about five minutes) of its customers. With its restricted hinterland, and consequently small volume of sales, it will contain only a limited range of convenience goods, particularly oriented to the day-to-day shopper. It is quite likely that such a centre would take the form of only one or two shops, probably somewhat larger than their present-day counterparts (totalling about 6,000 sq. ft.), and serve between 3,000 and 5,000 persons.

5.10. The next level in the hierarchy would be the *district* centre. The ideal district level centre would provide a wide range of convenience goods at very competitive prices. Typically, it would be used regularly at weekends by car-shoppers and therefore requires adequate car-parking provision to fulfil its function properly. Such a centre would also contain a range of non-food goods that are bought quite frequently, such as drapery, hardware and minor electrical items. The minimum hinterland necessary to make a modern centre of this type viable is about 15,000 persons.

5.11. The characteristic of the *regional* centre would be its wide range of competitively-priced durable goods with, of course, some convenience goods shopping. This is the sort of centre which is visited relatively infrequently (monthly rather than weekly) to purchase goods which are not highly standardized and have a personal appeal, such as clothing and furniture. Because of the large stocks of goods which have to be carried to provide real choice for the customer in terms of size, style, quality, etc., this type of centre will require a substantial population to support it, probably approaching 150,000 persons. The length of journey involved, together with the fact that it is normal for such stores to provide delivery services, makes such a centre more dependent on an adequate public transport system than the district centre.

5.12. In most parts of the United Kingdom, and certainly in Central Scotland, the density of population and pattern of transportation facilities is sufficient to generate a fourth and



top level in the hierarchy, the metropolitan centre. Although such centres will be dominated by the sales of durable goods, it will be the presence of very specialised shops and a wide range of associated professional and entertainment services that are its distinguishing characteristic.

5.13. It is an essential feature of such a shopping hierarchy that the various levels of centre each have their own clearly defined role, and can therefore be regarded as complementary rather than competitive from the shopper's point of view. It is important, too, from the physical planner's point of view, that the retail hierarchy should have some affinity with other hierarchies, such as education, the welfare services and recreation, since there are many possibilities for the joint use of facilities, particularly transportation. The district centre retail hinterland extends that for a secondary school and would justify some community buildings (see Chapter 8) and welfare provision, such as a clinic. The regional centre will contain the non-metropolitan professional and entertainment services, and possibly a further education institution.

5.14. The application of the model hierarchy outlined above to any particular location will have to contend with two important factors which may cause modification of it. The actual distribution of population and its associated transportation network may not provide suitably sized hinterlands, and income differences among the population may or may not help in this respect. Secondly, the presence of an existing shopping centre, located for historical reasons, may have sufficient momentum to inhibit, at least for a time, the full realisation of a more modern pattern. In this context it will almost certainly be necessary to plan for the elimination of some of the struggles of weak and inefficient shops which will prevent the complete success of new, planned district centres by creaming-off trade which would otherwise ensure their success at an earlier date.

5.15. The hierarchy also contains a considerable degree of flexibility within it because, although certain minimum conditions have to be met for each level to function effectively, there is no clear upper limit. This means that not all centres at each level of the hierarchy are necessarily the same size or identical in composition. It follows therefore that the actual number of centres at each level of the hierarchy, for a given population total, is not fixed—only the maximum number is. This means that there may be variations within the Survey Area in the proportion of consumers' expenditure which is devoted to each level of the hierarchy.

5.16. How large such variations may be is difficult to foresee, but it is clear that they will be of little significance at the local and metropolitan levels in 1986 because of their relatively small proportion of total sales. At the district and regional level, however, such variations could be considerable. At one extreme it is possible to visualise the district level centres benefiting very greatly, from the expansion of sales of standardized durable goods, at the

expense of the regional level centre. Alternatively, it can be argued that the regional centre will not only benefit from the growth of durable goods sales, but that increased personal mobility will mean that considerable convenience goods sales will also occur at the regional level, because car-shoppers will visit it for groceries on, say, one weekend every three or four weeks.

5.17. When the range of variation indicated in paragraph 5.16 is quantified (on the basis of the data in Appendix 1) and applied to Falkirk, the existing regional centre, total retail sales in Falkirk town centre in 1986 range from a minimum of about £20 millions to a maximum of about £40 millions. There is therefore an opportunity to influence, within this range, the relative strength of the district and regional levels of the hierarchy. Three considerations lead to the decision to select a situation virtually midway between the extremes. Substantial district level centres are necessary in an attempt to balance, within the Area, traffic flows relating to shopping and entertainment. Exactly the same argument applies to the provision of car-parking for shopping and entertainment. The third consideration was the amount of space that could reasonably be found for the expansion of the existing Falkirk town centre. Being the regional centre, Falkirk's town centre already has a very considerable area devoted to non-retail commercial uses such as hotels, offices, banks, entertainment facilities, etc. Important among these other commercial activities is the provision of office space for a wide range of administrative, commercial and industrial users. Indeed, one consequence of the population expansion in the Survey Area will be to stimulate demand for such premises in Falkirk town centre, as it is the obvious location for the majority of users because of its unique accessibility to the rest of the Survey Area. Almost 100,000 sq. ft. of commercial office use existed in 1985, and it would be reasonable to expect this to more than double by 1986. Physical surveys showed that some 40 acres could readily be used for all town centre activities, and it was therefore reasonable to expect shopping not to exceed about 20 acres since other commercial activities, including car-parking, would occupy the remainder.

#### IV

#### Retailing in the Survey Area

5.18. Three reasons explain why more and different shopping facilities will be required in the Survey Area by 1986. The population increase of 100,000 persons will require to be provided for. By 1986 the population of the Survey Area, whether immigrant or native, is expected to be wealthier in real terms and have a higher standard of living with a higher level of retail expenditure than at present. Thirdly, such substantial urban expansion and redevelopment as is proposed in this study will disturb most of the existing shopping. For shopping purposes the Area cannot be fully self-contained; certainly, people within the Area will spend

some money outside it, and possibly people from outside will spend some money within the Area. An examination of these possibilities is based on a knowledge of the distribution of population, the accessibility of the population to possible shopping centres, the existing pattern of shopping facilities both within and adjacent to the Survey Area, and the likelihood of changes in the adjacent area.

5.19. Table 5.1, which includes almost 2,000 persons more than the Survey Area, shows that the average sales per head in the Survey Area was below the Scottish average. When the Area is adjusted to correspond more closely to a self-contained shopping region, by excluding the western part of Stirlingshire Central No. 2 District of County (1,725 population), and including Linlithgow Burgh and District of County in West Lothian, the average sales per head becomes £157.4. Assuming that the level of incomes in the Survey Area was that of the Scottish average or just above,<sup>(1)</sup> this implies that approximately £11 per person was spent in shops outside the Area. This portion (eight per cent) almost certainly went mainly to shops in the city centres of Glasgow and Edinburgh, i.e., the metropolitan-level centres.

5.20. The high level of sales per head in Falkirk, shown in Table 5.1, reflects the fact that its town centre, functioning as a regional level centre, attracts shoppers from a surrounding district, probably extending beyond the Survey Area. As Table 5.2 shows, every other shopping centre within the Survey Area was considerably smaller than Falkirk town centre, and the area of food shops accounted for between one-third and two-thirds of the total retail area,

TABLE 5.1

*Retail Sales<sup>(1)</sup> per head in Survey Area, 1961*

Falkirk Burgh . . . . .	267.7
Grangemouth Burgh . . . . .	112.4
Denny and Dunipace Burgh . . . . .	130.7
Bo'ness Burgh . . . . .	138.9
Stirlingshire: Eastern No. 1 D.C. . . . .	97.2
Eastern No. 2 D.C. . . . .	126.2
Central No. 2 D.C. . . . .	88.2
West Lothian: Bo'ness D.C. . . . .	80.0
Survey Area . . . . .	157.9
Scotland . . . . .	168.0
Great Britain . . . . .	174.0

Source: Census of Distribution and Other Services, 1961, part 13, Table C.

<sup>(1)</sup> Exclude gas and electricity showrooms and were adjusted for non-response using the Scottish average rate of non-response.

compared with only one-seventh in Falkirk town centre.

5.21. By comparing the location of the shopping centres in Table 5.2 with the sales per head figures in Table 5.1, it is possible to establish approximate sales per head at each level of the hierarchy as it was in 1961. The location of the centres listed in Table 5.2 makes it obvious that in the case of Bo'ness, Denny and Grangemouth the local authority units used by the Census of Distribution correspond fairly closely to the actual hinterlands of their town centres. The population of Bo'ness District of County use Bo'ness town centre for a major part of their

<sup>(1)</sup> 1958 Report of Inland Revenue, (Cmd. 2288), shows an average per head income in 1956-60 for Stirlingshire of £247 compared with a Scottish average of £242.

TABLE 5.2  
*Floor area in shopping centres, 1965*

'000 sq. ft.

Centre <sup>(1)</sup>	Retail		Service <sup>(4)</sup>	Total
	Food <sup>(2)</sup>	Non-Food <sup>(3)</sup>		
Falkirk: Town Centre . . . . .	49	348	374	771
Grahamston . . . . .	13	29	97	139
Bainford . . . . .	18	6	42	66
Camden . . . . .	21	26	35	82
Grangemouth: Lunley Street area . . . . .	28	32	67	147
Charlotte Dundas . . . . .	17	4	5	26
Bo'ness town centre . . . . .	21	32	n.a.	n.a.
Seahouseside . . . . .	14	18	24	56
Denny and Dunipace . . . . .	9	15	47	71
Larbert . . . . .	8	4	31	43
Laurieston . . . . .	7	7	10	24

Source: Field Survey, 1965.

<sup>(1)</sup> These centres were identified as the major concentrations of shops within the Survey Area. Their definition as "shopping centres" prevents direct comparison with the Census of Distribution data based on shops within local authority boundaries in 1961.

<sup>(2)</sup> Food, confectionery, newsagents and tobacconists shops.

<sup>(3)</sup> Clothing, footwear, household goods, general stores, and other non-food shops.

<sup>(4)</sup> Hairdressers, shoe repairs, laundries, cleaners, gas and electricity showrooms, restaurants, cafes, hotels, all commercial entertainment establishments, and post office, banks, garages, etc., but excluding the offices of commercial and industrial businesses.

shopping, most of the population of Stirlingshire Central No. 2 District of County use Denny and Dunipace town centre, and Grangemouth residents shop in Grangemouth, except when they go to Falkirk. Table 5.3 shows the small range of sales per head derived by treating each of these small centres and their surrounding areas as a shopping district. Their average of £114 represents the amount of local and district level sales in the Survey Area in 1961. Since paragraph 5.19 established that metropolitan sales per head averaged £111, and Table 5.3 indicates that district and local level sales together average £114 per head, the difference required to make the sales per head up to the total amount of £168 must represent per capita sales at the regional level, i.e. £43. There is less evidence within the Survey Area as to the division of sales between the local and district levels, and studies in other parts of Central Scotland have suggested that this can vary quite a lot from locality to locality. In the Survey Area, the largely rural population in Bo'ness District of County only spends £30 per head in the immediate locality, while in the more urbanized area of Bonnybridge and Dennyloanhead the figure is higher at about £80. Their average of £70 is typical of sales per head at the local level in Central Scotland.

TABLE 5.3  
Sales<sup>(1)</sup> per head, 1961

Denny and Dunipace Burgh	£ 111
Central No. 2 D.C.	
Bo'ness Burgh	
Bo'ness D.C.	122
Grangemouth Burgh	112
Average	114

Source: Census of Distribution and Other Services, 1961, part 13, Table C.

<sup>(1)</sup> Defined as in Table 5.1.

## V

### Future Retail Provision in the Survey Area

5.22. Three consequences of the physical expansion of the Survey Area must be examined before it is possible to outline the most suitable arrangement of retail facilities in 1986. These are (a) major changes in the accessibility patterns due to new and improved transportation facilities, (b) the growth of major new shopping centres in proximity to the Survey Area, and (c) the actual residential land use pattern proposed for the Survey Area in 1986. Theoretically, it is desirable for shopping needs to be one of the factors influencing the arrangement of land uses. In practice, however, because of the flexibility of shopping patterns and, in this study, limitations arising from land unsuitable for development and large areas of existing land use, this is not fully possible.

5.23. As soon as the target of people in private households of 225,000 was established, it was appreciated that a major policy decision was

required about the scale and location of the "commercial capital" of the Survey Area. It was clear from the size of the target population that only one such centre of "regional" quality could survive. Given the expected pattern of development, and the momentum of the existing "regional" centre in Falkirk, it seemed correct to reject the possibility of developing a new regional centre in a "green field" site in favour of expanding the existing one. This decision was confirmed when it was ascertained that the existing centre could be expanded sufficiently without undue difficulty. Given the location of the regional centre, it was then necessary to ensure that it would possess reasonable accessibility to the residential areas, existing and proposed. Further, if a policy of developing strong district centres is adopted (as is recommended) then it is likely that the road traffic requirements of the regional centre will be able to be met, especially as British Rail propose to make much fuller use of Grahamston Station, which will be within the expanded regional centre. The probable improved accessibility between the Survey Area and the rest of Central Scotland does not noticeably affect shopping opportunities, and the population of the Survey Area is expected to continue to visit the metropolitan shopping areas of central Glasgow and central Edinburgh for facilities not available in Falkirk town centre, even in 1986.

5.24. Just outside the Survey Area, two new major shopping centres which did not exist in 1961 will be fully established by 1986 if present plans come to fruition. The largest of these will be the town centre of Livingston, less than 15 miles away to the south-east and accessible via the new Grangemouth-Bathgate road. The Livingston centre is expected to serve a population of 230,000 by 1986 and will, therefore, be broadly comparable with Falkirk. It is not expected, therefore, that the residents in one growth area will shop regularly in the other. Nor is there expected to be any reduction in the extent of Falkirk's hinterland at the regional level, because the fringe settlement of Linlithgow will still be nearer to Falkirk than Livingston in time-distance terms. The other shopping centre will be Cumbernauld town centre, which by the 1980s is expected to be serving between 70,000 and 80,000 persons. It cannot therefore be regarded as a serious competitor to Falkirk at the regional level, but it is possible that the small population in the Dennyloanhead area may find it more attractive than the new district centres, referred to in paragraph 5.25 below, at Denny and Greenbank (south-west of Falkirk) which will, in fact, be nearer to them.

5.25. It seems reasonable, therefore, to assume that the emergence of Livingston and Cumbernauld town centres will not materially affect the size of Falkirk's regional hinterland or the intensity of its attraction. The situation with regard to Stirling town centre, some 12 miles to the north-west, is not so clear. Not (yet) designated for large-scale expansion, it is the site of Scotland's newest university and has a thriving shopping centre. As Table 5.4 shows, it was in 1961 very comparable with Falkirk as a regional

shopping centre, and it has proposals in hand for improvement and expansion. Given, however, the scale of expansion envisaged in Falkirk, it seems likely that in the 1980s an increasing number of the residents of Stirling and vicinity would occasionally visit Falkirk. Because of the difficulty in estimating the volume of this potential expenditure, it has been kept as a separate item in the calculations in Appendix 2.

TABLE 5.4

*Stirling and Falkirk as shopping centres, 1961*

	Stirling	Falkirk
Population of burgh	27,000	38,000
Town centre sales (£'000)	6,205	5,564
Town centre non-food sales (£'000)	4,033	4,191

Source: *Census of Distribution and Other Services, 1961*, part 13, Table 3.

5.26. As Map 5.1 shows, the proposed new residential land is mainly concentrated in five localities—North Denny, North Larbert (Glenbervie), an eastern extension of Stenhousemuir (Carronshore), south of Falkirk High (Greenbank) and a southwards extension of Bo'ness. In the case of Bo'ness and North Denny, these localities are virtually extensions of the existing built up area and are within one mile of an existing shopping centre. They will, therefore, be well served if the existing centre is redeveloped to provide adequate facilities. The areas known as Glenbervie, Carronshore and Greenbank are sufficiently far away from existing centres and of sufficient size to justify the provision of new centres at the district level. The existing centre in Stenhousemuir and in Grangemouth will benefit from some additional population which will be nearer to them than to any alternative centre, and therefore these centres must expect to serve this additional population.

5.27. Two problem areas remain, where the distribution of population is not ideally suited to the hierarchical structure proposed for the rest of the Survey Area. In Camelon, a population of only 17,500 is largely located between 1 and 1½ miles from Falkirk town centre. It is reasonable to expect this centre to achieve district level status, despite its proximity to Falkirk town centre, because the site of the proposed shopping centre in Camelon is very central to its hinterland population which is compactly distributed. East of Falkirk, between Laurieston, Polmont and Brightons, about 17,500 persons will be rather widely distributed because of the uneven terrain. In these circumstances and because of the proximity of the district level centres in Grangemouth and Falkirk, it seems prudent not to provide for a fully developed district centre. Instead, it is suggested that rather better than average local facilities would suit the conditions best and make a reasonable if not ideal arrangement.

5.28. At the lowest level of the hierarchy, local centres are suggested for populations of between 3,000 and 5,000 persons, composed of

either two or three basic residential units (see Volume II). To serve the whole Area in 1986 about 50 to 60 of these centres will be needed, and their precise location cannot be established until the detailed layout of the residential areas is known. Several of the small existing centres—Larbert, Bainsford, Charlotte Dundas (Grangemouth) and Laurieston—will emerge as new local centres, some remaining in their present locations and others relocated for traffic and other reasons (see Volume II).

5.29. The actual hierarchy of shopping centres proposed for the Survey Area in 1986 is summarised in Table 5.5, together with an indication of their expected hinterland populations. Map 5.1 on page 66 shows the location of these centres and their populations.

TABLE 5.5

*Survey Area shopping hierarchy, 1986*

Level	Centre (with 1986 hinterland population)
Regional	Falkirk . . . . . 223,000
District	Falkirk . . . . . 35,000
	Denny . . . . . 25,000
	Glenbervie . . . . . 17,500
	Stenhousemuir . . . . . 17,500
	Camelon . . . . . 17,500
	Greenbank . . . . . 21,500
	Carronshore . . . . . 17,500
	Grangemouth . . . . . 38,500
	Bo'ness . . . . . 25,000

<sup>(1)</sup> The total of the district level hinterlands is less than the regional hinterland total of 223,000 because 3 basic residential units (Airth, Boonybridge and Dennyloanhead) are so peripheral that their allocation at this stage is impossible and because some 5,000 persons are expected to reside in the Survey Area outside the basic residential units.

5.30. The extent of the difference between this situation expected to exist in 1986 and that in 1961 is not adequately revealed by the existence of three new district centres, together with many new local centres. It is perhaps even better expressed by a comparison between 1961 and 1986 of the average *per capita* expenditure at each level of the hierarchy. The data for 1961 in Table 5.6 were derived from the analysis of the Census of Distribution, described in Section IV of this Chapter, adjusted to include all the expenditure categories shown in Table 5.8 (Appendix 1). The 1986 data is based on the projected division between convenience and durable sales shown in Table 5.10 (Appendix 1). The marked decline in the proportion of expenditure at the local level is attributed mainly to the growth of weekend convenience (largely grocery) shopping at supermarkets in district level centres, which will account for almost half (48 per cent) total convenience goods expenditure. A third of convenience goods expenditure (equal to 18 per cent of total expenditure) is expected to be retained by the local centres and, with little or no such expenditure at the metropolitan level, the regional centre can expect to attract the

remaining 18 per cent of convenience goods expenditure. Both the district and regional level centres will benefit from the increased proportion of total expenditure devoted to durable goods in 1986. Since there will be no durable goods sales at the local level and, as noted in paragraph 5.23, the total share of metropolitan level sales is expected to remain virtually the same (equal to 21 per cent of durable sales), the regional and district level centres must together service the remaining 79 per cent. Paragraph 5.16 discussed the difficulty of estimating how sales will be shared between the district and regional levels

and, because of the policy adopted for the reasons given in paragraph 5.17, it is assumed that about one-third of durable goods sales should be allocated to the district centres, which results in the regional centre attracting the remaining durable sales, amounting to 46 per cent of the total.

5.31. The calculation of the estimated size of each centre in 1986, based on these figures, together with a discussion of the problems particular to each centre, are contained in Appendix 2. The sizes are summarized in Table 5.7.

TABLE 5.6  
*Per capita expenditure at each level of the hierarchy, 1961 and 1985*

Level	1961 Total		1985						Change 1961-85 %
			Convenience		Durable		Total		
	£	%	£	%	£	%	£	%	
Local . . . . .	36	37	59	34	—	—	59	18	-16
District . . . . .	47	25	82	46	53	53	105	41	+191
Regional . . . . .	50	57	51	16	73	46	124	51	+124
Metropolitan . . . . .	21	11	—	—	33	21	33	10	+37
TOTAL . . . . .	154	100	192	100	156	100	331	100	+76

TABLE 5.7  
*Estimated size of major shopping centres in 1986*

Centre	Level	Area in '000 sq. ft.
Falkirk . . . . .	Regional, District and Local	about 600
Bo'ness . . . . .	District and Local	95-100
Camelon . . . . .	District and Local	65-70
Carronshore . . . . .	District and Local	about 70
Denny . . . . .	District and Local	about 95
Glenbervie . . . . .	District and Local	about 67
Grangemouth . . . . .	District and Local	110-125
Greenbank . . . . .	District and Local	about 93
Stonhousemuir . . . . .	District and Local	about 70

Source: See Appendix 2.

## VI

### Conclusions

5.32. (a) This study argues that, based on the expected changes by 1986:

- in the distribution of population within and adjacent to the Survey Area;
- in the level of personal spending in shops;
- in the technology and efficiency of retailing; and
- in shopping habits;

the most appropriate shopping pattern is a three-fold hierarchical structure of regional, district and local centres.

(b) Falkirk town centre will remain as the major centre and the only one within the Survey Area at the regional level. It will require about 18 acres of retail floor space to service retail sales estimated to amount to almost £20 million in 1986. Good public transport facilities will remain important to this centre.

(c) Eight other major shopping centres will be district level centres (Bo'ness, Camelon, Carronshore, Denny, Glenbervie, Grangemouth, Greenbank and Stonhousemuir), varying in size according to their location from approximately 70,000 sq. ft. to 125,000 sq. ft. These centres will generate a very large demand for

car-parking facilities in relation to their size, certainly exceeding a ratio of one square foot of car-parking for each square foot of retailing floor area by 1986.

- (d) Between 50 and 60 local shopping centres will be required. These must be easily accessible to the pedestrian shopper and on average will not be more than five minutes' walk from their hinterland population of between 3,000 and 5,000.
- (e) It is recommended that the provision of certain educational, administrative, welfare and entertainment facilities should also be related to the retail hierarchy and located in suitable shopping centres to benefit from the joint use of facilities. This applies particularly to possible commercial office development in Falkirk town centre.

(f) The implementation of these proposals implies a carefully co-ordinated approach throughout the Survey Area involving:

- (i) planning related to population growth and the physical redevelopment of existing centres; and
  - (ii) the application of land use controls to achieve the desired balance between different levels of the hierarchy and between different centres within each level of the hierarchy.
- (g) It is strongly recommended that these estimates be carefully revised when more up-to-date information is available, as it is certain that forecasts of shopping needs for 20-25 years ahead must contain a considerable margin of error.

## APPENDIX 1

### The Projection of Retail Expenditure and Efficiency

5.33. In order to estimate the sizes of shopping centres required in the Area in 1986 it is necessary to forecast both the volume of retail sales and the average level of sales per square foot of retail floor area, usually referred to as the turnover-support figure. The former is based on a forecast of the growth in *per capita* real income and includes an estimate of the broad change in the pattern of expenditure expected to occur as a result of increased incomes.

5.34. The all-important assumption in a forecast of *per capita* retail expenditure is the national economic growth rate. In the National Plan (Cmd. 2764) retail spending was assumed to rise at 2.8 per cent per year for the period 1964-70. The average for the decade 1960-70, allowing for the slower rate of growth of 2.0 per cent per year for 1961-4, was 2.4 per cent per year. When the estimated population increase is included, the annual rate of growth of retail sales *per capita* is just less than two per cent per year. In the period 1964-6 the rate of growth has been well below the National Plan estimate, and considerable doubt now exists as to whether the target can be achieved by 1970.

5.35. There is no "official" view about the rate of growth of gross national product beyond 1970, the terminal year of the National Plan, although several semi-official estimates have been made. These range between three and four per cent per annum, and the figure of 3.8 per cent per year in total output is usually adopted and is consistent with the National Plan estimates for the period to 1970.

5.36. The growth of average sales per head in the Survey Area may well differ from the national average rate of growth. The selection of the Survey Area as a growth area, together with the Government's regional economic policy, may raise the level of local income and therefore the level of retail sales more quickly than in Great Britain as a whole. The

population expansion, however, will give the Area a larger than average family size which will tend to offset the expenditure effect of above average income growth.

5.37. It is extremely difficult to quantify these trends, but it seems clear that the national rate of growth of sales in the decade 1961-71 is expected to be less on average than that for 1971-81, and that the national average rate of growth is a reasonable indication of the likely growth rate within the Survey Area. This prediction, therefore, uses the following growth rates for retail sales *per capita*: 1961-71 at two per cent per year and 1971-86 at 2.5 per cent per year. The estimate of £168 in 1961 derived from the Census of Distribution would therefore become £296 in 1986 and the £188 in Table 5.8 becomes £331 by 1986, at 1961 constant prices.

5.38. It is unfortunate from the point of view of this study that several retail and service activities were excluded from the 1961 Census of Distribution. Although Table 5.8 attempts to make the coverage more comprehensive by including estimates for some items not included in the Census, there are still many facilities found regularly in shopping centres which are not included, for example banks, post offices, travel agencies, etc.

5.39. As real income rises, and expenditure increases, there is a tendency for a greater proportion of income to be spent on durable and specialist items. Examination of Table 5.9, derived from the Family Expenditure Survey, gives an indication of the extent to which this occurs. This expected change in the pattern of spending will be reflected in the structure of the retail trade in two main ways. Non-food or durable goods sales will increase as a proportion of all sales, and since such sales are concentrated at the regional and metropolitan level, such centres will tend to expand. To some extent the increasing standardization of many non-food products will lead

TABLE 5.8  
Retail and service sales per capita, 1961

Commodity	Scotland		Great Britain	
	£	%	£	%
1. Grocers and provision dealers . . . . .	48.5	25.8	45.8	22.6
2. Other food retailers . . . . .	31.9	17.0	34.8	17.8
3. Confectioners, tobacconists, newsagents . . . . .	17.8	9.2	15.6	7.7
4. Clothing and footwear shops . . . . .	26.6	14.2	26.1	13.0
5. Household goods shops <sup>(1)</sup> . . . . .	10.1	5.6	22.8	11.1
6. Other non-food retailers . . . . .	11.8	6.0	13.1	6.5
7. General stores . . . . .	15.3	8.5	10.1	5.0
8. Total retail . . . . .	169.6	90.3	178.1	87.4
9. Services <sup>(2)</sup> . . . . .	1.6	1.0	2.4	1.2
Total sales (Gross of Distribution) . . . . .	171.4	91.3	180.5	88.6
10. Laundry, cleaning and dyeing . . . . .	1.50 <sup>(1)</sup>	0.8	1.9	0.9
11. Cars and motor cycles new and second-hand . . . . .	7.40 <sup>(1)</sup>	3.9	11.4	5.5
12. Catering . . . . .	7.60 <sup>(1)</sup>	4.1	15.0	7.0
GRAND TOTAL . . . . .	189.1	100.0	201.4	100.0

Sources: Items 1-9, *Gross of Distribution and Other Services, 1961*.

Items 10, *Family Expenditure Survey, Report for 1960 and 1961, Table 1*.

Items 11 and 12, *National Income and Expenditure, 1961*, see footnotes in Table II, p. 136 of *Statistical Journal of Political Economy*, Vol. LX, 1962.

<sup>(1)</sup> Includes gas and electricity showrooms.

<sup>(2)</sup> Hairdressers and boot and shoe repairs.

<sup>(3)</sup> Derived from the Great Britain figures and adjusted by the ratio which expenditure on this item was to British expenditure, as shown in the Family Expenditure Survey for 1962, Table 3 (Scotland) and Table 2 (Great Britain).

TABLE 5.9  
Household expenditure on selected commodities by income class

Commodity	Percentage of total expenditure at different weekly incomes		
	£5-£10	£11-£20	£21-£40
Food . . . . .	33	33	27
Clothing, footwear and household goods . . . . .	10	14	18

Sources: *Family Expenditure Survey, 1964, Table 2*.

to them becoming more like convenience goods and then sold through outlets in the larger district-level centres.

5.40. The future is further complicated by changes in consumers' concepts of a necessity and the introduction of technical developments which can result in abrupt jumps in the upward course of demand for particular products. The annual rate of increase in total demand for food in the decade 1960-70 is estimated in the National Plan at 1.5 per cent, compared to 3.6 per cent for clothing and household durable goods (a figure of 4.9 per cent is expected if motor vehicle demand is included with other durable goods). Very similar figures are contained in Beckerman's estimate of the pattern of consumers' expenditure in 1975.<sup>(1)</sup> The projection here assumes a relatively steady continuation of the recent trend of a two per cent per decade decline of the food sector's share of total retail trade, thus making convenience goods in Scotland 52 per cent of total retail and

service trades in 1985, compared with 57 per cent in 1961.

5.41. Table 5.10 compares the estimate of sales per head in 1986 based on the above assumptions with that for 1961.

TABLE 5.10  
Retail and service sales per capita, 1961 and 1986 (constant 1961 prices)

	1961		1986	
	£	%	£	%
Convenience . . . . .	167	57	172	52
Durable . . . . .	61	43	159	48
Total . . . . .	188	100	331	100

5.42. It is not to be expected that the whole growth in retail spending will be directly reflected in pro-rata expansion of retail selling and storage space. There is evidence that most modern shopping centres achieve sales amounting to £25-£30 per square foot of gross retail area (turnover-support), while the typical existing centre averages between £14 and £16 per square foot. The recent technological changes in retailing have resulted in a virtual doubling of efficiency as measured by turnover-support. There are many factors which will influence the future levels of turnover-support, such as the increasing volume of

<sup>(1)</sup> W. Beckerman and Associates, *The British Economy in 1975*, Cambridge University Press, 1965.

trade itself, the gradual decline of resale price maintenance, changes in the Acts relating to shop hours, as well as less measurable matters such as a rise in the quality of merchandise sold. Although, therefore, estimates of the amount to be allowed for increased efficiency in space usage are uncertain, some guidance is available from the recent trend in labour efficiency and experience in the United States. All the evidence suggests that there will be a continued rise and that it

will probably be faster in the period up to 1976 than in the decade following. For this study, therefore, the growth of average turnover-support in a modern shopping centre is projected at 1.5 per cent per year to 1976 and at 1.0 per cent per year for the period 1976 to 1986. This means that the average turnover-support figure for convenience goods in 1986 will be £39, compared with £30 in 1961, and for durable goods £35 instead of £25.

## APPENDIX 2

### The size of Regional and District Level Centres in 1986

5.43. The estimates of the floor area likely to be required in the shopping centres in 1986, contained in this Appendix, are based on a population distribution, expenditure level and degree of retail efficiency that have already been discussed. The estimate relates to the gross retail floor area (i.e., sales and storage together) and does not take account of the many commercial activities excluded from Table 5.8, notably such services as post office, banking, entertainment, etc. The populations based on aggregations of basic residential units must also be regarded as estimates, since the actual density of development may eventually provide a slightly different result. The centres are examined in alphabetical order and their location in relation to their hinterlands is shown on Map 5.1.

5.44. *Ba'ness District Centre*: In addition to 14 basic residential units amounting to 24,500 people, a further 500 in the adjacent rural area are expected to use the centre. This centre will consist entirely of modern premises after its relocation in Douglas Park, approved by the Secretary of State for Scotland on 15th February, 1966. The estimate calculated in Table 5.11 should be regarded as a minimum, since the distance to the regional centre in Falkirk may be sufficient to give rise to rather above average district-level sales by the town's population, and the population of Linlithgow will almost certainly visit the new centre occasionally.

5.45. *Camelon District Centre*: The existing centre strung out on a main traffic route will be completely replaced by the proposed new centre. Because of its considerable proximity to Falkirk town centre, this development will require very careful phasing and execution. Some high density residential development is desirable immediately adjacent to the centre so that the district centre has a local shopping population that is as large as possible. The estimated

district level hinterland is only 17,000, although it is possible that some residents of Bonnybridge may also patronise the centre if the road network facilitates it. Because of the proximity to Falkirk and the small hinterland, the estimate in Table 5.12 should be regarded as a maximum.

5.46. *Carrmshore District Centre*: This centre is suggested to serve the ten new basic residential units that lie too far west to be served conveniently by the centre at Stenhousemuir. Because of the small hinterland population, it would be advantageous to provide a large local hinterland for the district centre as well as not overproviding at the local level.

5.47. *Denny District Centre*: The small existing centre, now in its first phase of redevelopment, will provide the nucleus of the suggested district centre to serve the considerably expanded population of Denny. The district hinterland population is estimated at 23,000 in 13 basic residential units, together with a further 2,000 from the immediately surrounding area, including about half of the residents of Bonnybridge.

5.48. *Falkirk District Centre*: This is the only centre in the Survey Area of regional status and, as argued in paragraph 5.24, the regional hinterland population is estimated at 225,000 in the Survey Area in 1966, plus a further 7,000 in Linlithgow and vicinity. At the district level, 14 basic residential units in Falkirk, together with two rather isolated ones to the south-west, make a hinterland population of 28,000. At Laurieston, four basic residential units are expected to use Falkirk town centre as a district level centre less frequently than those in Falkirk itself. These "fringe" shoppers, 7,000 in all, are expected to spend just over half their district level expenditure in Falkirk (see paragraph 5.27). An estimated 3,000 persons will use the centre for local shopping. As Table 5.15 shows, these assumptions will require a retail floor area of about 780,000 sq. ft. in 1986.

TABLE 5.11  
*Floor area of Ba'ness District Centre, 1986*

Hinterland	Population	Sales per head	Sales (£ million)	
			Convenience	Durable
District . . .	25,000	£ 82	2.08	—
Local . . .	2,000	53	—	1.33
Local . . .		59	0.12	—
TOTAL . . .			2.17	1.33
Turnover-support (£ per sq. ft.) . . . . .			39	35
Area required ('000 sq. ft.) . . . . .			56	38
Total floor area needed . . . . .			94,000 sq. ft.	



TABLE 5.12  
*Floor area of Camelon District Centre, 1986*

Hinterland	Population	Sales per head	Sales (£ million)	
			Convenience	Durable
District . . .	17,000	£ 82	1.38	—
Local . . .	3,000	58	0.30	0.90
Total . . .		59	1.68	0.90
Turnover-support (£ per sq. ft.)			39	55
Area required (7000 sq. ft.)			43	26
Total floor area needed			89,000 sq. ft.	

TABLE 5.13  
*Floor area of Carronshore District Centre, 1986*

Hinterland	Population	Sales per head	Sales (£ million)	
			Convenience	Durable
District . . .	17,900	£ 82	1.44	—
Local . . .	3,500	58	0.21	0.33
Total . . .		59	1.65	0.33
Turnover-support (£ per sq. ft.)			39	55
Area required (7000 sq. ft.)			42	27
Total floor area needed			89,000 sq. ft.	

TABLE 5.14  
*Floor area of Denny District Centre, 1986*

Hinterland	Population	Sales per head	Sales (£ million)	
			Convenience	Durable
District . . .	25,000	£ 82	2.05	—
Local . . .	2,000	58	0.12	1.33
Total . . .		59	2.17	1.33
Turnover-support (£ per sq. ft.)			39	55
Area required (7000 sq. ft.)			35	58
Total floor area needed			94,000 sq. ft.	

This estimate of 780,000 sq. ft. to service sales of over £28 millions must be regarded as a minimum, for no account has been taken of the 70,000 population in Stirling and Alloa (referred to in paragraph 5.12) for whom this will be the nearest shopping centre on such a scale. Nor is it reasonable to assume that all of the 80,000 sq. ft. of shopping built between 1960 and 1965 will be replaced by 1986, and therefore it is likely that the average turnover-support level may be less than that used in Table 5.15, thus giving rise to a need for more square feet. For these reasons an estimate of 800,000 sq. ft. is quoted in Table 5.7. It is worth noting that on the basis of sales of £28 millions Falkirk's town centre will account for over 40 per cent of the total retail sales of the Survey Area in 1986, compared with 30 per cent in 1961.

5.63. *Glenferrie District Centre:* This is suggested as an entirely new centre to serve the ten new basic residential units north of Stenhousemuir. Careful phasing with population growth and care not to overprovide with local shopping centres are the main requirements for the successful development of the centre. It clearly would be advantageous, especially because the hinterland population is not large, if the early residential development could be readily served by shops on the site of the future district centre. This would establish the desired shopping pattern at the earliest opportunity.

5.50. *Groyneshead District Centre:* In 1963 about 80,000 sq. ft. of retail floor area existed in the vicinity of Lumley Street, which was beginning to be re-

developed. As can be clearly seen on Map 5.1, the proposal to continue Lumley Street as the major shopping centre in Grangemouth means that it will continue to be markedly off-centre in relation to its suggested hinterland population. Four reasons contributed to this decision. Lumley Street is the existing centre with a certain amount of momentum, but more important was the absence of a suitable alternative site. The south-east corner of Zetland Park is the only undeveloped site which is very central in relation to the hinterland, but this possibility was rejected on environmental grounds and because it

was very close to Charlotte Dundas Court. This recent centre, with its 21,000 sq. ft. of modern shopping floor area, is considerably larger than the local centres are expected to be by 1986 and yet has no room for expansion and only very limited provision for car-parking. It therefore seemed best to site the district centre away from Charlotte Dundas Court in order to give both centres the best opportunity to develop. A final consideration was the expectation that people from Polmont would visit the Grangemouth district centre every other weekend on average and that for these fringe shoppers Lumley Street is

TABLE 5.15  
*Floor area of Falkirk Regional Centre, 1986*

Hinterland	Population	Sales per head	Sales (£ million)	
			Convenience	Durable
Regional . .	280,000	£ 31	7.13	—
District . .	28,000	73	—	16.79
Fringe District .	7,000	82	2.30	—
Local . .	3,000	33	—	1.48
		42	0.29	—
		33	—	0.23
		59	0.18	—
TOTAL . .			9.90	18.50
Turnover-support (£ per sq. ft.) . . . . .			39	35
Area required ('000 sq. ft.) . . . . .			254	529
Total floor area needed . . . . .			783,000 sq. ft.	

TABLE 5.16  
*Floor area of Glenbervie District Centre, 1986*

Hinterland	Population	Sales per head	Sales (£ million)	
			Convenience	Durable
District . .	17,500	£ 82	1.44	—
Local . .	2,000	53	—	0.93
		59	0.12	—
TOTAL . .			1.56	0.93
Turnover-support (£ per sq. ft.) . . . . .			39	35
Area required ('000 sq. ft.) . . . . .			40	27
Total floor area needed . . . . .			67,000 sq. ft.	

TABLE 5.17  
*Floor area of Grangemouth District Centre, 1986*

Hinterland	Population	Sales per head	Sales (£ million)	
			Convenience	Durable
District . .	28,000	£ 82	2.30	—
Fringe District .	10,500	53	—	1.48
Local . .	2,000	42	0.44	—
		33	—	0.35
		59	0.12	—
TOTAL . .			2.86	1.83
Turnover-support (£ per sq. ft.) . . . . .			39	35
Area required ('000 sq. ft.) . . . . .			73	52
Total floor area needed . . . . .			125,000 sq. ft.	

as accessible as the alternative in Zealand Park. The Grangemouth district centre can therefore expect to serve 28,000 people in Grangemouth (i.e., 18 basic residential units) and a further 10,500 in the Polmont area. Because Lumley Street is an eccentric location, it would be reasonable to expect the population to use either Charlotte Dandax or Falkirk town centre more frequently than if it had been more central and therefore more convenient. For this reason, and because of uncertainty over the strength of attraction of Polmont shoppers, the estimate in Table 5.17 should be regarded as a maximum.

5.51. *Greenbank District Centre*: This new district centre is suggested to serve the 12 almost wholly new basic residential units to the south-east of Falkirk's town centre. It would be advantageous if the development of this residential district could begin near the

site of the suggested district centre and so help to establish the desired shopping pattern despite the proximity of Falkirk town centre. The estimate in Table 5.18 is therefore best regarded as a maximum.

5.52. *Stanhousemuir District Centre*: This centre is suggested to serve the expanded population of the Larkhall-Stanhousemuir district from the site of the existing centre, which contained approximately 30,000 sq. ft. of retail floor area in 1965. The fairly small hinterland population implies care should be taken not to overprovide at the local level. Although many of the existing traders are expected to be affected by physical development before 1986, some may remain. The estimate in Table 5.19 should therefore be regarded as minimum to allow for some traders with lower than average levels of turnover support.

TABLE 5.18  
*Floor area of Greenbank District Centre, 1986*

Hinterland	Population	Sales per head	Sales (£ million)	
			Convenience	Durable
District . .	21,000	£ 62	1.72	—
Local . .	3,500	58	0.21	1.11
<b>Total . .</b>			<b>1.93</b>	<b>1.11</b>
Turnover-support (£ per sq. ft.)			39	35
Area required (300 sq. ft.)			50	92
Total floor area needed			80,000 sq. ft.	

TABLE 5.19  
*Floor area of Stanhousemuir District Centre, 1986*

Hinterland	Population	Sales per head	Sales (£ million)	
			Convenience	Durable
District . .	17,500	£ 62	1.44	—
Local . .	2,000	58	0.12	0.96
<b>Total . .</b>			<b>1.56</b>	<b>0.96</b>
Turnover-support (£ per sq. ft.)			39	35
Area required (300 sq. ft.)			40	27
Total floor area needed			67,000 sq. ft.	

# Transport

D. R. DIAMOND

6.1. In Scotland only the cities of Glasgow and Edinburgh have a wider range of transport facilities, a more intensive network or a greater frequency of transport movements than the Grangemouth-Falkirk locality. Largely because of its significant geographical location, as is explained in Chapter 2, the Survey Area has acquired a level of provision of transport facilities which has not only been one of its outstanding characteristics, but one of the reasons for its better than average economic growth in recent years. As was pointed out in the Central Scotland White Paper,<sup>(1)</sup> this growth area is the only one to fall within the general sphere of influence of both the two main centres of economic and cultural life, Edinburgh and Glasgow.

6.2. Located about 25 miles from and midway between Glasgow and Edinburgh, the Survey Area lies athwart the main rail link between them and many of the major roads which link them with the rest of Scotland. It contains a major port and is reasonably accessible to the airport facilities at Abbotston or Turnhouse by either road or rail. Use of the networks by public and private transport is intensive, and considerable sections of the urban road network were being used at capacity levels in 1964. Further, the Government had already initiated major improvement schemes affecting the road, rail and port facilities of the Survey Area prior to the beginning of this study. To a large extent, therefore, the questions which arose were related to modifying and co-ordinating the physical planning proposals as they arose from this study, with the continuing programme of transport improvement, rather than devising and initiating a new development programme for transport.

6.3. This Chapter therefore examines the broad pattern of the existing and developing road and rail facilities and their utilization as demonstrated in journey to work movements. It also attempts to examine the main relationships between the physical expansion of the Survey Area and the need for and supply of transport. The physical planning studies in Volume II deal in more detail than is appropriate here with the alignment and capacity of the existing and future road network within the Survey Area and the method used to test the adequacy of the road proposals for conditions in the 1980s.

## Existing Transport Facilities: Roads

6.4. The Survey Area may in many respects be regarded as being contained within the apex of a triangle, formed by the three busiest trunk roads in Scotland. The base of the triangle is the A.8 between Glasgow and Edinburgh, its eastern side is formed by the A.9 Edinburgh-Falkirk-Stirling road and the western side by the A.80 Glasgow to Stirling road, which joins the A.9 at Bannockburn, south of Stirling. The Survey Area is linked to these major Scottish routes by a series of trunk and classified roads, most of which focus on Falkirk town centre (e.g., A.803, A.883, A.891 and A.904). The A.876 and A.905 connect the Survey Area, and A.80 and A.9, to Kincardine Bridge, which for about 30 years prior to the opening of the Forth Road Bridge in 1965 had been the lowest bridging point across the River Forth.

6.5. The importance of the A.80 and A.9 and their cross-connection, the A.876, as Scottish routes is shown by their inclusion in the White Paper (Cmd. 2188) proposals. Their reconstruction, mainly involving relocation on to new alignments, will provide the Survey Area with links at motorway or near motorway standard with Clydebank and Edinburgh by 1970 or shortly after. The Survey Area's primary road links with England will then be either via the A.80, and Maryville link to the new Hamilton by-pass (M.74) or, alternatively, by the new Grangemouth to Bathgate road and thence to the A.74 via the M.8 and A.73 or A.71. The present proposals, when they come to fruition in the early 1970s, clearly provide a sound network for linking the Survey Area with all the other major industrial nodes in Central Scotland and with the A.74, Scotland's main road link with England. There appear to be few difficulties arising from the phasing of the known programme, and it is expected that when complete it will provide sufficient capacity to meet the likely demand provided an adequate system of roads for journeys originating and finishing within the Survey Area is available.

6.6. As elsewhere in Britain, the road network that serves to join the existing communities of the Survey Area together is very uneven in its ability to meet present demand. It is at this level of intra-Survey Area travel that the greatest

<sup>(1)</sup> *Central Scotland: A Programme for Development and Growth*, Cmd. 2188, November, 1963, p.29.

impact of the physical expansion of the Area will be felt. The demand for transport facilities within a community of 250,000 persons is an outcome, and should also be a determinant, of the arrangement of land use. If transport is to be among the determinants of the land-use plan, then the best use of land and the required transport network sought ideally to be determined simultaneously by comparing a wide range of alternative land uses and their transportation consequences. Because the Survey Area already contains an urban land use pattern over much of its area, and one that can only be marginally altered, together with numerous miles of fixed transport facilities, and because of limited data, this ideal situation was not fully realized. In the absence of a full-scale transportation study, a more modest traffic study, based on a relatively simple gravity model, was carried out to help derive the 1960 traffic flows. A full account of the assumptions, methods and results of this study are contained in Volume II.

#### *Existing Transport Facilities: Rail*

5.7. The Grangemouth/Falkirk growth area, when compared with the other growth areas identified in the White Paper (Cmd. 2186), has a very high level of provision of rail facilities. These are not important as a method of transport within the Survey Area itself, but as a means of providing links between the Survey Area and the rest of the country. Again, this is a consequence of being adjoined several major Scottish routeways, and it is only accidental that this pattern has proved to be most convenient for the growth area itself.

5.8. Because the Glasgow to Edinburgh, Glasgow to Stirling and Perth, the Glasgow to Fife, and the Edinburgh to Stirling railway lines all pass through the Survey Area, it is possible for the Grangemouth/Falkirk district to maintain four passenger stations and two important rail freight depots. The only remaining rail passenger route between Glasgow and Edinburgh has access to Falkirk Grahamston, Falkirk High and Polmont stations. Although this service provides a half-hourly link with the two city centres, because the Glasgow-Fife trains also use this route, there is a Glasgow-Falkirk train about every quarter-of-an-hour throughout most of the day. Thus, not only does the Survey Area have several points of connection with trains for Glasgow, Edinburgh, Stirling and North Scotland, and most of these with a half-hourly or better frequency of service, but the journey time to the city centres varies between only 25 and 60 minutes, depending on which station is used.

5.9. Falkirk Grahamston station, which until the reorganization of services in November 1966 was little used, will become the main passenger station within the Survey Area. Not only will it have the most frequent service to Glasgow and Edinburgh, but it will also be the main stop within the Area on the route to Fife, and will connect via Larbert with Glasgow trains to Stirling, Perth, Dundee and the North-East. It is located on the edge of the central area of Falkirk within a few minutes' walk of the new bus station at Callender Riggs, and will there-

fore be very convenient for commuters into and out of the Survey Area. Falkirk High will remain as a station on the fast route between Glasgow and Edinburgh, but if the inter-city traffic develops much further the number of stopping trains on this route will have to be reduced. Polmont will serve the eastern end of the Survey Area and be the transfer point for the Edinburgh to Stirling journeys. Larbert is used as stopping point for some main line trains between the North and London, which go via Motherwell, and also for the Glasgow trains to Stirling, Perth, Dundee and North-East Scotland. Larbert will have a half-hourly service with Glasgow and Edinburgh and, because of its proximity to Fife via the Kinross Road Bridge, may well attract traffic from outwith the Survey Area.

6.10. Rail freight facilities within the Survey Area are concentrated at Falkirk Grahamston for sundries and wagon-load traffic, and at Grangemouth for wagon-load traffic, mainly in connection with the docks. Liner freight will have to travel to the terminals in Glasgow and Edinburgh. For this traffic and for the sundries collection depot at Grahamston, the improved road facilities will be of considerable importance.

#### *Travel-to-Work*

6.11. The rail and road facilities described in the preceding paragraphs are utilized by the population of the Survey Area for a variety of purposes, social, business, recreational, etc. However, from the point of view of economic growth and transport planning it is the daily journey to work which is of most significance. The quality of the transport arrangements within the Survey Area and between it and the rest of Central Scotland can have an important influence on the rate and pattern of economic growth by influencing the daily journeys to and from work. Conversely, peak traffic flows are normally associated with the daily journey to work, and the provision of satisfactory transport facilities depends largely on success in handling these traffic flows. The need for labour mobility, as expressed in the pattern of daily journeys to and from work to achieve effective local and regional labour markets which are both balanced and efficient, has been discussed at some length by Dr. L. C. Hunter.<sup>(1)</sup> Here, an account is given of the recent pattern of work journeys within the Survey Area and between it and surrounding areas, and an attempt is made to consider how the growth of population and job opportunities in the Survey Area will affect the future demand for transport facilities.

6.12. The Survey Area comprises all of the Grangemouth and Bonnybridge Employment Exchange Areas, much of Falkirk Employment Exchange Area, and about half of the Bo'ness Employment Exchange Area (see Diagram 2.1 on page 18). Since the parts outside the Survey Area are relatively sparsely populated, hilly and/or agricultural regions, they can be included in the Survey Area for an account of travel-to-

<sup>(1)</sup> "The Regional Labour Market", Chapter 8 of the *Leithen Regional Survey and Plan*, Volume 1, 1966.

TABLE 6.1

*Gross and net flows of labour for males, females, and total,  
to and from the Survey Area, 1951-64*

		1951	1955	1959	1961	1963	1964
Travel into Survey Area	Male	2,560	2,513	2,969	3,057	2,920	2,950
	Female	469	485	650	515	505	510
	TOTAL	3,029	2,998	3,619	3,572	3,425	3,460
Travel out of Survey Area	Male	1,237	1,676	2,121	2,483	2,765	2,740
	Female	745	905	1,211	1,340	1,385	1,480
	TOTAL	1,982	2,581	3,332	3,773	4,150	4,170
Net Flow (I=In O=Out)	Male	1,323 (I)	837 (I)	848 (I)	624 (I)	155 (I)	210 (I)
	Female	276 (O)	420 (O)	561 (O)	825 (O)	880 (O)	920 (O)
	TOTAL	1,047 (I)	417 (I)	287 (I)	201 (O)	725 (O)	710 (O)

*Source: Ministry of Labour*

work without distorting the picture. Table 6.1 shows the pattern of travel-to-work into and out of the Survey Area between 1951 and 1964.

6.13. It can be seen from Table 6.1 that there has been a continued increase in the number of daily journeys by both male and female employees over the period shown and that the total net flow has changed from an inward movement of 1,000 in 1951 to an outward flow of 700 in 1964. The causes of this lie not only in the improvement of transport facilities, but also in the changing employment situation within the Survey Area which is examined in Chapter 4. Table 6.2 shows the origin and destination of the major flows of work-journeys across the boundary of the Survey Area in 1964. It clearly confirms that the accessibility created by the transport facilities between the Survey Area and Glasgow and Edinburgh has had important consequences for the functioning of the regional labour market. It is worth noting too that although the inward and outward flow of male journeys almost balances in 1964, there is a net outflow of female work-journeys which, after rising steadily since 1951, amounted to almost 1,000 in 1964.

6.14. The pattern of journeys to work within the Survey Area has remained stable since 1961, and Table 6.3 shows the situation in 1964. Of the total inflow of workers to the Survey Area from outside, Falkirk attracted 37 per cent, Grangemouth 26 per cent and Bo'ness and Bonnybridge 18 per cent each. In the reverse direction, Falkirk accounted for 53 per cent of the outflow, Bonnybridge 25 per cent, Bo'ness 17 per cent, and Grangemouth only five per cent. Although Grangemouth had the largest inward flow of any employment exchange area within the Survey Area, it was Falkirk Employment Exchange Area, with almost 8,000 work-journeys, that dominated the pattern in 1964.

### The Port

6.15. In 1964 Grangemouth Docks handled a total trade exceeding four-and-a-half million tons, thus making it the largest port in Scotland

after Glasgow and thirteenth in the United Kingdom. As Table 6.4 shows, in recent years there has been a steady growth in imports, exports have declined slightly and, consequently, the trade of the port has become increasingly balanced. The principal import in 1964 as in previous years was petroleum products for the oil refinery and chemical plants, which accounted for 50 per cent of the total tonnage. This figure does not include the several million tons of crude oil imported to the refinery via the pipe line from Finnart. Timber accounted for a further 15 per cent of imports, and iron and steel goods, wood pulp and ore for a further five per cent each. The volume of the import trade is thus closely related to the needs of local industry (petrochemicals), and proximity to Scandinavia (timber).

6.16. Petroleum products account for 75 per cent of the total export tonnage, and iron and steel goods, with 10 per cent, is the only other product of importance. Although both the foreign and coastwise trade of the port is clearly dominated by petroleum products, which normally account for the bulk of the variation in the year-to-year figures, 1964 did see an increase in dry cargoes of 271,173 tons. Table 6.5 shows the trend in foreign exports which, although small in volume (but more significant in value terms), reflects the changing industrial structure of the port's hinterland.

6.17. The export hinterland of the Port of Grangemouth is, as Table 6.6 shows, concentrated within 50 miles, though it has a smaller percentage of its exports originating within 25 miles than does either Glasgow or Leith. All the Scottish ports show the effect of distance from industrial areas in England, and Grangemouth shows how important is its proximity to the Clyde-side conurbation. Import hinterlands are always more restricted, and in Grangemouth 91 per cent of the dry cargo imports other than iron ore find their destination within 25 miles of the port, a further six per cent in the 25-mile ring, and the remaining four per cent at over 200 miles from the port.

TABLE 5.2

*Number of male, female and total workers travelling into and out of the Survey Area, 1964*

	Gross movement IN from:			Gross movement OUT to:		
	Male	Female	Total	Male	Female	Total
Striding . . . . .	655	85	740	455	185	620
Glasgow . . . . .	280	40	320	455	120	570
Edinburgh . . . . .	285	145	540	280	160	440
Leith/Glasgow . . . . .	270	90	360	360	515	625
Braeburn . . . . .	280	20	300	—	—	—
Kilryth . . . . .	225	60	285	610	290	900
Aldrie . . . . .	155	55	190	—	—	—
Allea . . . . .	155	20	175	225	265	510
Bathgates . . . . .	—	—	—	165	20	185
Dunfermline . . . . .	—	—	—	120	10	130

Note: Movements of less than 100 have been omitted.

Source: Ministry of Labour.

TABLE 5.3

*Number of work-journeys between Employment Exchange Areas, 1964*

FALKIRK		FROM	TO
Bo'ness . . . . .	210		360
Bonnybridge . . . . .	545		420
Glasgowmouth . . . . .	700		2,035
Survey Area . . . . .	1,455		3,795
Other areas . . . . .	1,265		2,200
All areas . . . . .		2,720	4,995
GLASGOWMOUTH		FROM	TO
Bo'ness . . . . .	365		55
Bonnybridge . . . . .	75		10
Falkirk . . . . .	2,085		760
Survey Area . . . . .	2,895		765
Other areas . . . . .	905		195
All areas . . . . .		3,800	960
BO'NESS		FROM	TO
Bonnybridge . . . . .	45		5
Falkirk . . . . .	260		210
Glasgowmouth . . . . .	55		765
Survey Area . . . . .	360		960
Other areas . . . . .	650		725
All areas . . . . .		1,010	1,705
BONNYBRIDGE		FROM	TO
Bo'ness . . . . .	5		45
Falkirk . . . . .	420		545
Glasgowmouth . . . . .	10		75
Survey Area . . . . .	425		685
Other areas . . . . .	640		1,050
All areas . . . . .		1,055	1,715

TABLE 5.4

*Trade of the Port of Glasgowmouth, 1952-64*

thousand tons

	Imports			Exports		
	Foreign	Coastwise	Total	Foreign	Coastwise	Total
1952 . . . . .	1,365	365	1,640	1,334	1,640	2,954
1957 . . . . .	1,175	556	1,735	1,061	607	1,668
1962 . . . . .	1,365	387	1,682	1,751	558	2,689
1963 . . . . .	1,465	325	1,858	1,681	869	2,550
1964 . . . . .	1,439	721	2,160	1,523	963	2,486

Source: British Transport Docks Board.

TABLE 6.5

Selected foreign exports of the  
Port of Grangemouth, 1961-64

thousand tons

Commodity Group	1961	1962	1963	1964
Petroleum . . .	938	1,258	1,185	998
Coal . . .	186	165	161	93
General Cargo . . .	84	96	97	10
Iron and Steel . . .	126	137	150	233
Machinery . . .	—	1	2	19
Vehicles . . .	—	1	6	14
Beverages . . .	—	—	2	15
Food (excl. grain) . . .	—	—	6	13
Chemicals . . .	—	—	—	17

Source: British Transport Docks Board.

TABLE 6.6

Inland origin of dry cargo exports other than  
coal for major Scottish ports, 1964

thousand tons

Area of origin:	Port of shipment		
	Glasgow	Grangemouth	Leith
Glasgow . . .	474	216	19
Edinburgh . . .	24	2	31
Dundee . . .	17	9	3
Aberdeen . . .	10	—	—
Rest of Scotland . . .	187	156	44
England . . .	27	4	1
TOTAL . . .	739	367	98
Reef distance:		%	
0-25 miles . . .	64	33	77
26-50 miles . . .	29	59	19
51-75 miles . . .	—	2	4
Over 75 miles . . .	7	1	—

Source: Study by Martech Consultants Ltd. on behalf of the Port of London Authority.

6.18. The grant of permission from the Government in 1965 for a £7 million capital improvement scheme to construct a new, enlarged entrance lock means the first major improvement of the dock facilities since 1906, when the present lock entrance was finished at the time Grange Dock was built. When it is completed in 1969 it will allow ships of about 40,000 tons to enter the dock, compared with 14,000 to 18,000 tons at present. This improvement will allow better use to be made of the improved handling facilities built recently at a cost of £4.5 million. It will be of value to both the petroleum and dry cargo trade of the port but, in addition, the port authority has a further scheme to construct tidal tanker berths. The National Ports Council has recommended that since these berths outside the docks would be exclusively for the use of B.P. refinery, it is for B.P. to decide whether the berths are required and, if so, to pay for them.<sup>(1)</sup>

6.19. The National Ports Council in recommending the improvement of the entrance to Grangemouth Docks argued that the expendi-

ture of £7 million was only justified if it was felt that Grangemouth had a future as a port. They commented: "The traffic prospects are good and the port is likely to earn a sufficient level of net revenue".<sup>(2)</sup> The proposals for the population and industrial expansion of the Survey Area contained in this Report make it even more likely that this will be the case. The improvement of the road and rail connections for the port are particularly important in this respect, and the new Bathgate to Grangemouth road will be essential by the time the Livingston Growth Area has developed substantial industrial capacity. The port is fortunate in having considerable undeveloped land within its 416 acres and has or can readily develop sufficient berthage capacity to accommodate any increase in trade arising from the new entrance and dredged channel or increased industrial activity in the Survey Area or Central Scotland.

6.20. According to the Port of London Authority enquiry in 1964, about 17 per cent of Scottish dry cargo exports other than coal (about 250,000 tons) left from United Kingdom ports outside Scotland. It might be hoped that if industrial growth in Central Scotland continues over the next two decades, it will be sufficient to encourage new regular sailings from Grangemouth, and this in turn, may lead to a reduction in the trade of Scottish goods from English ports. In recent years Grangemouth has extended considerably the areas covered by regular sailings. Table 6.7 shows that departures exceed those of Glasgow if Ireland is excluded, and most of those to Northern Europe are weekly, while the service to the Far East is three times a month. Connections with West and South Africa and Central and South America are virtually non-existent.

TABLE 6.7

Foreign trade shipping movements for  
Glasgow, Leith and Grangemouth, 1963

Destination	Number of departures of non-tankers with cargo		
	Glasgow	Leith	Grangemouth
Germany . . .	12	34	92
Holland . . .	24	269	370
Other North European . . .	162	330	483
Other European and Mediterranean . . .	127	7	24
South and West Africa . . .	13	2	—
East Africa, Persian Gulf and Far East . . .	263	1	38
Australasia . . .	52	1	11
North America . . .	185	10	36
Central and South America . . .	54	—	1
TOTAL . . .	902	654	1,055

6.21. Grangemouth Docks are well suited to serve any rising demand for sea transport to and from Scotland, because of their excellent

<sup>(1)</sup> National Ports Council, *Port Development: An Interim Plan*, para. 226.

<sup>(2)</sup> *Op. cit.*, para. 235.



location and improved links with the hinterland, their modernized and efficient facilities offering rapid turn round of ships, and their improving service of frequent sailings with Europe and the Far East. On these general grounds it seems reasonable to expect the trade of the Port of Grangemouth to grow over the next twenty years or less in line with the growth of the Scottish economy.

6.22. There are two possibilities which could substantially alter such a forecast. If the existing oil refinery expands more rapidly than is planned or a new oil refinery is developed, the impact on tonnages handled would be very great. Another possibility is that a major development will take place on the hundreds of acres of suitable land reserved for industrial development at Sidslaw, adjacent to and immediately north of the port. Such a development might in part be attracted to this site because of the proximity of the port facilities and their potential for expansion.

6.23. To some extent also the future growth of the Port of Grangemouth will depend on the role of Glasgow and Leith. This point was discussed in the Lothians Regional Survey and Plan,<sup>11</sup> and the conclusion then reached, that Grangemouth was the port that preferably should be given the opportunity to develop, has been strengthened by recent events. With modern inland transport, distance is no longer so strong an economic barrier, except for commodities with a high weight-to-value ratio, and the hinterlands of the three Scottish ports will increasingly overlap. Efficient port facilities to achieve a rapid turn-round of bigger ships will become increasingly important, and this can only be done if sufficient space exists. One result of these new methods of transport is the move away from the general port, where ships with almost any cargo can be handled at most berths, to ports which handle only one commodity or are made up of a group of specialised berths. From all these considerations it seems justified to expect the Port of Grangemouth to handle an increasing volume of trade over the two decades. In 1964 it is estimated that employment in the port amounted to about 1,500 persons, together with a net import of 6,000 man-days mainly from other east coast ports. As a source of employment and as an important piece of infrastructure, the port has clearly contributed to the economic growth of the Survey Area. There is every reason to suppose this situation will continue.

### *Transport and the Growth of the Survey Area*

6.24. The preceding paragraphs have shown that when the currently developing road, rail and port facilities are completed in 1970-2, the Survey Area will be closely tied to the rest of Central Scotland. The metropolitan influence of Glasgow and Edinburgh will be more accessible, areas of labour catchment will increase and a very wide range of educational, social and cultural amenities will be available within a half-hour journey. This includes not only the city centres of Glasgow and Edinburgh, but also

Stirling, with its new university, the 70,000 people in Cumbernauld New Town only 10 miles from Falkirk town centre, much of Fife, and the rapidly developing growth area which includes Livingston New Town, 15 miles away. In this context it seems reasonable to expect that the demand for transport will rise more rapidly than the growth of population. The Survey Area already has a high proportion of its labour force employed in transport, 8.33 per cent compared to a Scottish average of 7.9 per cent, and it is quite likely that this will increase further. An example of the way in which the transport facilities of the Survey Area can induce economic activity is given by the commencement in August 1966 of the first completely integrated road-rail system in Scotland. Trains from Cheshire haul about 1,000 tons of soda-ash weekly to Larbert station, from where a private road haulier delivers it to glass factories in Stirling and Clackmannan.

6.25. It seems clear that present plans will provide a satisfactory basis for the growth in transport movements between the Survey Area and the rest of Scotland, and this is most important for the movement of industrial raw materials and finished products. The recent survey of Road Goods Transport has demonstrated the importance to the Scottish economy of the trunk-haul transport links for freight. Of the tonnage moving out of Scotland, 90 per cent travels over 100 miles, compared with 50 per cent in the north of England and even less elsewhere in England. Similarly, 80 per cent of tonnage moving into Scotland has come more than 100 miles, whereas in only two regions in England has even 50 per cent come that far. It is this consideration which may require a review of the Survey Area's links with the A.74 towards the end of the proposed development period.

6.26. Two issues concerning the links between the Survey Area and Central Scotland have not been finally settled in the discussions so far and will merit further attention at a later date when more appropriate data is available. It is possible that the M.8 may become overloaded in the 1980s and that Glasgow-Edinburgh overflow traffic may use the M.9-A.80 route as an alternative. In these circumstances it may be necessary to build a new road south of Falkirk to form a link between the M.9 and A.80 and which will by-pass the growth area and join the proposed new route to Glasgow via Kilsyth. Secondly, present data suggests that the M.9 north of the junction with A.876 will not be sufficiently heavily used to justify a road of motorway standard. This commitment could be re-examined most appropriately in the context of the forthcoming Forth Valley transportation study.

6.27. The provision of facilities to meet the future demand for road transport within the Survey Area is less advanced. The land-use pattern which is proposed in Volume II to provide for the expansion of the Survey Area also contains an outline of an internal road

<sup>11</sup> *Lothians Regional Survey and Plan*, Volume I, *op. cit.* para. 13.12.

network, hierarchical in structure, which is expected to be able to service the likely demand. Because of the importance of journeys to work in the total pattern of movement, the proposed industrial sites have been widely distributed in an attempt to balance the peak-flows in both directions. The presence of Grahamston station and its potential for development is one reason for retaining Falkirk town centre as the regional centre in the expanded Survey Area. The present traffic conditions in Falkirk town centre are most unsatisfactory and considerable care will have to be given to the supply, arrangement and co-ordination of transport facilities in the expansion of the town centre. Car-parking associated with the station, shopping and commercial employment opportunities will all have to be found in, or immediately adjacent to the town centre. One element affecting the proposed shopping pattern (Chapter 5) is the vast anticipated demand for car-parking associated with weekend grocery shopping. In proposing a dispersed pattern of substantial district shopping centres it is hoped that this demand can be met and congestion in the regional centre minimized. The tentative road network is also closely related to the need to serve the improved port of Grangemouth and connect Larbert, Polmont and Falkirk High stations with their adjacent residential districts.

### Summary

6.28. The main points to emerge from this review of transport facilities, and their significance in the growth of population and employment in the Survey Area, are:

1. At present the Survey Area is outstanding among the growth areas in Central Scotland in its provision of transport facilities.
2. This has mainly been the result of its location across several major Scottish route-ways.
3. A consequence of this location is the intensive use of many of these facilities,

especially by traffic passing through the Survey Area without requiring to stop.

4. A further consequence of its location and a high level of utilization of the transport facilities is the large share of the infrastructure improvement programme, outlined in the White Paper, devoted to this Area.

5. As a result, by the early 1970s, with greatly improved major roads, a modernized port and reorganized rail services, the growth area will have outstanding accessibility.

6. Utilized carefully, these facilities represent an enormous asset to aid the expansion of the Survey Area by making it more attractive to industrialists, employees, residents and transport operators.

7. Expansion of the Survey Area will enable a more intensive use to be made of the rail facilities.

8. The present road programme will provide adequate links between the Survey Area and Central Scotland at least until 1980. Thereafter, the demand arising from within and outside the Survey Area may require further major development.

9. The road programme for the circulation of traffic within the Survey Area will have to be developed in close relationship to the emerging land-use pattern. Tentative examination of the possibilities of a monorail system showed this to be very unlikely on economic grounds. The expected growth in car-ownership will cause difficulties, especially in the next decade. However, the compactness of the Survey Area, the existing intensive bus network and the opportunity to utilise four railway stations offer a good opportunity to manage the balance of private and public transport.

10. The most effective transport network will only be achieved by careful co-ordination and integration of the facilities. The standing committee on transport of the Scottish Economic Planning Council should consider the possibility of using this Area as a case study.

## Housing (1)

B. M. SWIFT

## I

7.1. The main concern of this Chapter is the estimation of the future housing requirements of the Area, given the present housing situation and the proposed population expansion. It thus falls into two main parts, the identification of the immediate housing needs of the present population from an analysis of the physical state and utilisation of the existing stock of dwellings, and the calculation of the future numbers of households from the population projections of Chapter 3 and assumed rates of household formation. The numbers of unfit and inadequate houses and probable future rates of obsolescence derived from the first section can then be combined with estimates of the number of additional houses which will be required on the basis of the expected growth in the number of households to give an overall house building programme.

7.2. It will be apparent that the Chapter is not an exercise in applied economics, calculating future rates of investment in housing from expected future levels of consumer spending. Such an approach is prevented by lack of data and is in any case irrelevant in so far as the lower level of investment is determined by government enforcement of minimum standards based on what is generally considered acceptable on social grounds rather than by the ability of the poorest to pay. Nevertheless willingness and ability to pay cannot be completely ignored since they determine the relevance and effectiveness, if not the content, of government housing policy. Therefore likely future trends in housing demand, as distinct from housing need, in the Area will be discussed in relation to the steps needed to achieve the housing targets in the concluding section of the Chapter.

7.3. The description of the present situation is based on the results of a specially-commissioned Housing Survey.<sup>(1)</sup> It was intended that this Survey should begin in April 1965 and be completed by mid-July 1965. Unfortunately, although the field work progressed smoothly the tabulation of the questionnaires was seriously delayed and the work was not completed until September 1966. This delay has had serious consequences for the work of the Regional team. By the time the tables were ready for use it was too late to exploit them fully in this Chapter and the original plan to prepare a separate Housing Survey Report has had to be abandoned.

7.4. But the present housing situation is only one point in a continuous process of development, and some understanding of that process is essential to a proper appreciation of the problems of today and of the policies with which it is hoped to solve them. Therefore before proceeding to the more detailed description of the houses and the families living in them it is proposed to review, very briefly, the main institutional changes of the past fifty years.

## II

7.5. Families may either buy or rent the house in which they live and if they rent they may do so from a private landlord or from their local authority. 'May' is perhaps misleading since in practice choice is restricted not only by the resources of the family but by the availability of

TABLE 7.1

*Percentage distribution of households by form of tenure, England and Wales, Scotland and the Survey Area, 1961*

Form of tenure	England and Wales	Scotland	Survey Area
Owner Occupiers . . . . .	42	25	19
Renting Privately:			
Furnished . . . . .	4	3	1
Unfurnished . . . . .	24	22	10
Other <sup>(1)</sup> . . . . .	6	8	7
All . . . . .	36	33	18
Renting from Local Authority <sup>(2)</sup> . . . . .	24	42	63
All forms . . . . .	100	100	100

*Source:* Census 1961, Scotland; figures for Scotland as a whole from Volume 4, Housing and Households, Part 1, Table 22. Those for the Survey Area derived from Scale A enumeration district data, Census 1961, England and Wales, Housing Tables Pt. II, London, H.M.S.O., 1965.

<sup>(1)</sup> Held by employment and rented with farm or business premises.

<sup>(2)</sup> Including, Scottish Special Housing Association (see Note to Table 7.2), First or Second Scottish National Housing Company, and New Town Corporations.

<sup>(1)</sup> I would like to thank Mr. Barry Cullingworth for his advice and to express my gratitude to Mrs. J. McCarrill for her willing and capable assistance in the checking and analysis of the housing survey results.

<sup>(2)</sup> Described in the Appendix to this Chapter.

accommodation of each type. The percentage of households in Scotland, England and Wales, and the Survey Area in each tenure category at the 1961 Census is shown in Table 7.1. Local authority tenants formed by far the largest group, 42 per cent of all Scottish households and nearly two-thirds of all households in the Survey Area. Less than a fifth of Survey Area households owned their own homes, compared with a quarter of all households in Scotland and over 40 per cent in England and Wales.

7.6. The emergence of local authorities as the principal providers of rented accommodation is one of the most important developments of the past fifty years. As Table 7.2 shows, 80 per cent of all the houses completed since 1919 have been for local authorities, the overwhelming majority built with the aid of subsidies from the central government.

TABLE 7.2

*New building for local authorities and private owners, Scotland, 1919-1966*

	Local authorities <sup>(1)</sup> %	Private owners %	All	
			%	thousands
1919-1939	68	32	100	537
1940-1944	83	17	100	28
1945-1959	91	9	100	381
1960-1964	76	24	100	148
1965	79	21	100	35
1966	78	22	100	36
1919-1966	80	20	100	966

Source: *Housing Returns for Scotland*, 31st December, 1966, Cmd. 3196, Edinburgh, H.M.S.O. 1967

<sup>(1)</sup> Including, Scottish Special Housing Association, other Housing Associations, New Town Development Corporations and building for Government Departments

Note: The Scottish Special Housing Association was established in 1937 to help the building efforts of local authorities in Distressed Areas. Its activities now include building for overspill programmes, for local authorities unable to obtain satisfactory tenders, and for letting at economic rents. It may also undertake conversion and improvement of existing houses. The Association is financed by government loan and its houses qualify for Exchequer subsidy. Houses, other than those built for government departments and local authorities, remain in the ownership of the Association and numbered over 57 thousand at the end of March 1964

7.7. The new era of subsidized local authority housing opened with the Housing and Town Planning Act of 1919.<sup>(1)</sup> This Act gave local authorities the duty of providing houses for the working classes in their areas and, recognizing that at current levels of building costs houses could not be provided at rents which such families could afford, offered financial help. The liability of a local authority for annual losses incurred in providing houses was to be limited to the product of a four-fifths of a penny rate. Any loss over that amount would be met by the

Exchequer. But the scheme was short lived. Building costs rose and with them the Exchequer liability. In August 1921 the subsidy was withdrawn.<sup>(2)</sup>

7.8. The subsidy which replaced it in 1923 was of a form which, with minor variations, remained the standard in Britain for the next forty years, namely a specified annual sum payable to the local authority for a given number of years, sometimes with conditions limiting the availability of the subsidy to houses built for certain purposes, or for certain categories of people, or of a specified size. Further, the contribution from the central government was to be matched by a similar specified annual contribution from the rates.<sup>(3)</sup> Under such a system the capital cost of a house, spread over a period of years, is met from three sources—the annual subsidies from the Exchequer and the rates and the balance from the rents paid by a succession of tenants. The version offered by the 1923 Housing, Etc., Act, £6 per house for twenty years, was only available to local authorities in respect of houses which they could show would be more appropriately built by them rather than by private enterprise. This condition was withdrawn in 1924 when the subsidy was increased to £9 per house payable for forty years on condition that the houses should be let for limited rents and that the local authority should make an annual contribution from the rates of £4 10s. for forty years. However rates of subsidy mean little in isolation. Assuming £350 to be representative of the inclusive cost of a three apartment flat during the later 1920's and 5 per cent as a representative rate of interest<sup>(4)</sup> then the annual charges needed to repay a loan of £350 at 5 per cent over a period of forty years are about £20. With a subsidy of £9 from the government and £4 10s. from the rates, the house could be let for £6 10s. per annum (2/6d. per week) plus a further sum to cover repairs and management.

7.9. During the late twenties and early thirties building costs and interest rates were falling and by 1932 it was considered that houses with sufficiently low rents could now be built without subsidy. In the following year rates of subsidy were reduced and subsequently discontinued completely for houses built after March 1935. A general needs subsidy was not reintroduced until

<sup>(1)</sup> For a detailed description of housing subsidies to local authorities see R. D. Cramond, *Housing Policy in Scotland 1919-1964*, University of Glasgow Social and Economic Studies, Research Paper No. 1, Oliver and Boyd, Edinburgh and London, 1966.

<sup>(2)</sup> That is to say, no further tenders for houses to be built with subsidy would be approved. On this and future occasions, subsidy remained payable for the agreed number of years in respect of those houses which had been approved for subsidy. However, under the 1922 Housing (Scotland) Act changes in the rate of subsidy can be made to apply to all houses built under the Act, not just new building. A similar provision is contained in the Housing (Financial Provisions, etc.) (Scotland) Bill, now before Parliament.

<sup>(3)</sup> The obligation to pay fixed contributions, introduced in 1924, was abolished in 1957, although it is assumed that local authorities will in fact continue to make a rate contribution equal to one-third of the Exchequer contribution.

<sup>(4)</sup> See R. D. Cramond, *op. cit.*, p. 15 and Appendix 2.

1946 but, until the suspension of house-building during the Second World War, subsidies continued to be available for houses built to rehouse slum dwellers and to relieve overcrowding under Acts of 1923, 1930, 1935 and 1938. The 1935 Housing (Scotland) Act also simplified local authority housing finance by permitting each authority to pool the subsidies it received under each Act and to reallocate them among its housing stock as it thought best.

7.10. Until recent years, post-war subsidy arrangements followed the pre-war pattern fairly closely although, of course, with changes in the list of specific purposes for which subsidies were available and in the actual sums involved. Further, in 1949 the restriction of local authorities to the provision of houses for the working classes was removed. However, in 1962 the first crude attempt was made to relate the rate of basic subsidy payable to the needs of the local authority. Hitherto, apart from minor exceptions the rate of subsidy had always been the same for all local authorities. Under the 1962 Housing (Scotland) Act, local authorities whose expenditure on their existing stock of houses exceeded the income derived from them in the form of subsidies, a notional rent<sup>(1)</sup> and rate contribution were to receive a basic subsidy for new building of £32 per house, while authorities whose housing income (calculated by the rules of the Act) exceeded their expenditure were to receive a basic subsidy of £12. The higher basic rate could be supplemented for authorities with a very large deficit.

7.11. A further important innovation contained in a Bill now before Parliament, attempts to relieve local authorities with heavy building programmes of the burden of high interest rates by paying a subsidy related to the aggregate cost (i.e. the cost of site, site works and erection) of the houses. "It will be assumed that the authority have raised by borrowing an amount equal to the aggregate cost. . . . The subsidy payable will be the excess of the annual loan charge for 60 years on this amount, calculated at a rate of interest to be specified by the Secretary of State . . . over the charge calculated at 4% per annum."<sup>(2)</sup> The rate to be specified will be representative of the rates of interest actually paid by local authorities on loans raised during the preceding financial year. Thus the subsidy payable on a house with an approved aggregate cost of £3,000 would be £27 per annum if the rate of interest specified were 5 per cent and £34 per annum at 6 per cent.

The Bill continues additional subsidies to "local authorities where resources, as measured by notional housing revenue accounts, are inadequate."<sup>(3)</sup> with a maximum of £75 per annum for a period of sixty years, and the following subsidies are to be available (in respect of approved houses) to all local authorities regardless of resources:

houses in blocks of flats of six or more storeys—£30 per annum for 60 years;

where costs are incurred in respect of difficult sites—not exceeding £2 per annum for 60 years;

where additional costs are incurred in preserving the character of the surroundings—not exceeding £10 per annum for 60 years;

for houses built by local authorities for purposes of overpill from overcrowded areas and to meet the needs arising from substantial transfers of industry—up to £14 per annum for 10 years.

7.12. The form of subsidy has been explained at some length, firstly, because of the cumulative effect of past measures on the present distribution of government aid and, secondly, to show the nature and extent of subsidies currently available for new building. It will be apparent that as a means of distributing financial aid between local authorities the system leaves a good deal to be desired. The amount of subsidy received by any one authority depends not on current need but on its building history—the age distribution of its housing stock and the particular subsidy conditions under which it was built. Recent measures relating size of subsidy to resources apply only to new building. Thus out of the total Exchequer subsidy to local authorities of £15.8 million for the year ending 31st March, 1965, only £0.6 million was for the resource related basic subsidy under the 1962 Act.<sup>(4)</sup> How the local authority in its turn distributes the subsidy it receives it alone decides. Through the operation of its tenant selection scheme it determines which families will benefit and which will not and, through its rent policy, how the subsidy is to be distributed among its tenants.

7.13. Until 1935 the freedom of local authorities to fix rents was fairly closely circumscribed but in that year all the conditions contained in earlier Acts were repealed and replaced by a general instruction to "take into consideration the rents ordinarily payable by persons of the working class in that locality."<sup>(5)</sup> With the extension, in 1949, of local authority responsibility for housing to include all sections of the population this instruction became obsolete and the present requirement is that local authorities should "make such reasonable charges as they may determine for the tenancy or occupation of such houses,"<sup>(6)</sup> and they have complete discretion in granting rebates to individual tenants.

7.14. But in practice in the post-war period "reasonable" seems to have been interpreted as what might have been reasonable in the late 1930's. A direct comparison of average local authority rents before and after the war is not possible because of changes in the Scottish rating

<sup>(1)</sup> A notional and not the actual rent to encourage local authorities to charge higher rents and to prevent them lowering rents and absorbing the difference from a higher rate of subsidy. The need for such an arrangement will be apparent from paras. 7.14-7.15 below.

<sup>(2)</sup> Housing (Financial Provisions, etc.) (Scotland) Bill, Explanatory and Financial Memorandum, para. 3, London, H.M.S.O. Ordered to be printed 19th October, 1966.

<sup>(3)</sup> Housing etc. Bill, *op. cit.*, para. 5.

<sup>(4)</sup> Scottish Development Department, *Report for 1965*, Cmd. 2948, Edinburgh H.M.S.O., 1965. Appendix 13, p. 78.

<sup>(5)</sup> See R. D. Cramond, *op. cit.*, p. 68.

<sup>(6)</sup> R. D. Cramond, *op. cit.*, p. 71.

system in 1957,<sup>(1)</sup> but an indirect comparison, making no allowance for changes in the value of money, is given in Table 7.3.

TABLE 7.3  
*Average weekly rents<sup>(1)</sup> of permanent local authority houses: Scotland*

Inclusive of owner's rates			Exclusive of all rates	
1938	1949	1955	1956 <sup>(2)</sup>	1964
s. d.	s. d.	s. d.	s. d.	s. d.
7 3	8 7	10 3	5 9	14 2

Source: *Rents of Houses Owned by Local Authorities in Scotland, 1964*, Cmd. 2596, Edinburgh, H.M.S.O., 1965, Table I

<sup>(1)</sup> Before deduction of rebates or inclusion of surcharges.

<sup>(2)</sup> Gross rents less owner's rates for 1956-1957

In fact, in 1958 some authorities were actually charging net rents lower than those of 1938 although the average annual cost of providing houses had more than doubled.<sup>(2)</sup> Since a local authority is obliged to balance its housing revenue account, expenditure not met by rents and Exchequer subsidy must be charged to rates. The following table (7.4) shows the percentage contribution from each source for burghs and counties in the years 1961-62 and 1964-65. It can be seen that although the proportion of gross expenditure covered by rent has risen in recent years it still meets less than half the total.

7.15. The origin of this situation is easily understood. A local authority could scarcely let similar houses for different rents (unless the family living in one of them was entitled to a rebate) and faced with the problem of either

raising the rents of a large number of pre-war houses or letting new houses at a rent equal to or slightly above that of the old (and charging the shortfall to the rates) the latter choice would be the easier of the two, particularly as under the old system of valuation and rating<sup>(3)</sup> any increase in rent automatically increased the rateable value of a property and thus the rate

<sup>(3)</sup> The essential features of the pre-1957 system were that rates were levied on both owners and occupiers of all lands and heritages, that the valuation roll was made up annually, and that the valuation of a house for rating purposes was the gross value, that is the rent at which, one year with another, in its actual state, it might reasonably be expected to be let. Thus where an honest rent was paying, that rent was the gross value. If a house was not let then the assessor estimated a rent, which a tenant could be prepared to pay, by comparison with other similar properties which were let; if there were insufficient of these, then by comparison with the valuations of similar owner-occupied dwellings.

In landsward areas rate liability was shared equally between owner and occupier. In burghs, occupiers were responsible for meeting the full cost of some services, regarded as particularly benefiting them as a class, and thus bore a higher proportion, about two-thirds, of the rate burden. Owners had still to pay their share while a house stood empty awaiting a purchaser or new tenant, and might also be liable for occupier's rates as well if a house fell vacant after the Roll had been made up for the year.

The 1956 Valuation and Rating (Scotland) Act dissociated valuation from actual rents and, with effect from 1961, introduced a system similar to that of England and Wales. Two values are assigned to all residential property, the *gross annual value*, a notional rent at which the property might reasonably be expected to be let if the tenant paid the rates and the landlord the cost of repairs, insurance, etc.; the *net annual value*, which is also the *rateable value*, is the gross value less a statutory percentage deduction. Owner's rates were abolished in 1967.

<sup>(2)</sup> *Report of the Department of Health for Scotland, 1958*, Cmd. 903, Edinburgh H.M.S.O., 1960, p. 110, para. 520.

<sup>(3)</sup> See footnote <sup>(1)</sup> above.

TABLE 7.4  
*Housing revenue account. Sources from which expenditure has been met, aggregates for large burghs, small burghs and counties, 1961-62 and 1964-65*

	per cent				
	Rents <sup>(1)</sup>	Exchequer subsidy	Rate subsidy	Other income	All
Large Burghs <sup>(2)</sup>					
1961-62	34.5	27.5	37.0	1.0	100.0
1964-65	39.5	24.8	34.6	1.1	100.0
Small Burghs <sup>(2)</sup>					
1961-62	30.0	52.0	29.0	1.0	100.0
1964-65	45.6	27.2	25.6	1.7	100.0
Counties <sup>(2)</sup>					
1961-62	27.0	30.0	41.0	2.0	100.0
1964-65	34.3	27.8	36.1	1.7	100.0

Source: The Institute of Municipal Treasurers and Accountants, Scottish Branch, *Rating Review*, for the years 1961-62 and 1964-65

<sup>(1)</sup> Gross rent income before deduction of rebates and including rents from shops and other buildings.

<sup>(2)</sup> Figures relate to all large burghs and all counties, but only 35 small burghs, those with populations of 9,000 and over at the 1951 Census, plus Helensburgh and Buckie.



better quality accommodation by moving into new uncontrolled property may appear prohibitive".<sup>(1)</sup>

Whether or not families who buy their own homes do so from choice or necessity it is hard to say but, in the inter-war period, the opportunity of buying if they wished was extended to a growing proportion of the population by the development of institutions for mortgage financing—in particular, the building societies. A family may rent its accommodation because it is either unable to raise the capital necessary for the initial down payment on a house,<sup>(2)</sup> or unwilling to accept the risks and responsibilities of ownership, or it may not be able to afford the higher annual payments of house purchase.<sup>(3)</sup> But if interest rates are high "the full cost rent of a house is only a fraction less than the annual mortgage charge, and in these circumstances, which have broadly operated in Britain over the last decade or so, most people will prefer to buy rather than rent their houses and it will hardly pay private developers to build houses for letting".<sup>(4)</sup> Since the war, owner-occupation has also offered positive advantages (to families not already enjoying subsidised accommodation) in the form of capital appreciation during a period of rising costs, and income tax relief.

Owner-occupiers were formerly liable, under Schedule A, for tax on the imputed income they derived from their house and were allowed to offset against taxable income any interest charges payable on their mortgage. In so far as Schedule A assessments underestimated the capital value of a house, this already represented a substantial tax advantage.<sup>(5)</sup> But in 1963 Schedule A was abolished. The rent income of private landlords is now taxed under Schedule D, but owner-occupiers pay no tax on the income in kind they enjoy from the capital invested in their house and moreover they retain the right to offset mortgage interest charges against taxable income. Apart from the discrimination between owner-occupiers and other investors, which might be considered socially desirable, this arrangement has the disadvantage of conferring the greatest relief on those paying the highest rate of tax and thus who presumably need it least. Proposals outlined in the White

Paper "Help Towards Home Ownership"<sup>(6)</sup> are intended to extend these tax benefits to poorer families. Under the scheme, persons borrowing for house purchase or improvement will be able to choose between borrowing at a lower rate of interest and forgoing tax relief or borrowing at normal rates of interest but with tax relief.

7.19. The tax system discriminates in favour of the owner-occupier but against the investor in houses to let. On the basis of the fiction that houses last for ever, the landlord, who arranges for the return of his capital by a sinking fund, must pay tax on the sinking fund instalments. As tax rates have risen and investment allowances for other types of capital equipment have proliferated investment in houses has been placed at a progressive tax disadvantage vis-à-vis investment in other types of capital asset.<sup>(7)</sup> Apart from the damaging long term effect on the supply of privately owned houses to let, failure to allow for depreciation for tax purposes constitutes a real obstacle to house improvement because of the size of the rent increase which the tenant must pay to enable the landlord to obtain a reasonable net return on his capital and recover the capital cost of the improvement.<sup>(8)</sup>

7.20. So far in this discussion of factors affecting the demand for and supply of private sector housing, rent control has been given a relatively minor role. However it could be argued that although the rents of new houses were not controlled, nevertheless fear of future control might prevent investors undertaking new house building

<sup>(1)</sup> L. Neeldman, *The Economics of Housing*, London, Staples Press, 1963, p. 164.

<sup>(2)</sup> This obstacle to home ownership may be less significant in the future. Although few have actually done so, since 1959 local authorities have had power to make loans for house purchase of up to 100 per cent of their valuation. In a recent White Paper (Ministry of Housing and Local Government, *Scottish Development Department, Welsh Office, Help Towards Home Ownership*, Cmd. 3163, London, H.M.S.O., 1966), "arrangements for the wider granting of mortgages of up to 100% of valuation for persons of modest means" were proposed. The Government would join the insurance companies in guaranteeing loans above the amount which the lending agencies would normally advance without collateral security. Legislation to this effect is now before Parliament (Housing Subsidies Bill, ordered to be printed, 5th December, 1966).

<sup>(3)</sup> The cost of a rented house is repaid by a succession of tenants over a period exceeding the working life of any one of them, possibly of 40 or even 60 years, whereas the owner-occupier financed by a mortgage must pay for the house during his own working life.

<sup>(4)</sup> L. Neeldman, *op. cit.*, p. 120. See also pp. 119-125.

<sup>(5)</sup> A. A. Nevitt, *Housing, Taxation and Subsidies*, London, Thomas Nelson & Sons Ltd., 1966, pp. 56-67. This tax advantage of the owner-occupier would be greater in England and Wales than in Scotland.

<sup>(6)</sup> Cmd. 3163, *op. cit.* These proposals are also incorporated in the Housing Subsidies Bill and are planned to come into operation on 1st April, 1968. Existing borrowers will be given the opportunity to transfer to the scheme.

<sup>(7)</sup> A. A. Nevitt, *op. cit.*, Chapter 4.

<sup>(8)</sup> A. A. Nevitt, *op. cit.*, p. 54. Miss Nevitt has calculated that a tenant must pay interest at 12½% on the cost of improvements to a property with a life of 25 years to allow a landlord paying tax at 10/9d on his sinking fund instalments to obtain a return of 6½% on his capital. If the sinking fund instalments were not taxed the tenant need only pay 9.3% to give the landlord the same net return.

*Continued from page 90*

could be made without the tenant's consent, and no notice to quit could take effect), reduced houses of lower suitable values from control at a change of tenant, and allowed increases in rent of houses remaining under control, the amount of the increase varying according to the distribution of responsibility for repairs and decoration between landlord and tenant (but with a maximum increase of 25 per cent of the rent payable before the 1954 Act). However, in the following year it proved necessary to introduce measures protecting tenants from the full impact of decontrol and loss of security of tenure, while the latest legislation, the 1965 Rent Act, introduces a new system of rent regulation. The Act applies to all privately let, unfurnished houses with a suitable value not exceeding £200 (for practical purposes this includes all privately let, unfurnished houses in the Survey Area). The rents of all such houses were frozen at the levels passing in December 1965 pending the establishment of the necessary administrative arrangements for the registration of rents and the assessment of a fair rent in cases where landlord and tenant fail to agree.



projects. This anxiety would have been more acute in Scotland where the system of levying rates on owners raised the prospect of rent income being slowly eroded by increases in owner's rates which could not be passed on to the tenant.<sup>(1)</sup> The effects of rent control on investment in controlled property are too complex for discussion here, although it would appear that in the inter-war period control was less of an obstacle to investment than is commonly supposed.<sup>(2)</sup> Since the war, controls have served to keep the landlord, unwillingly, in business. The cost to the landlord of withdrawing from the economic function of supplying accommodation, that is the difference between the current investment price of his house (determined by the controlled rent paid by the sitting tenant and current interest rates) and the vacant possession price, has been high enough to persuade most landlords to hold on in the hope of being able to realize the price with vacant possession. It is therefore not surprising that many landlords availed themselves of the decontrol introduced by the 1959 Rent Act to sell their houses for owner-occupation. Rent control may have prevented landlords selling out—it did not oblige them to keep their houses in repair. In fact it provided a strong temptation to maximise returns by spending as little as possible on repairs and maintenance. The 1954 Act which permitted landlords who repaired their houses to charge higher rents was not particularly successful and thus the stock of privately owned houses to let has not only dwindled in number but has deteriorated in condition as well.

7.21. Most of the arguments of the last few paragraphs apply both to England and Wales and Scotland yet, over the last fifty years, building for private owners has formed a much smaller proportion of total housing output in Scotland than in England and Wales (see para. 7.16), and the cumulative effect can now be seen in the difference in tenure distribution between the two countries (see Table 7.1). In looking for an explanation for this situation it is misleading to regard output by each sector as independent of that by the other. It may well be that in Scotland fewer houses were built in the private sector because so many were built by the local authorities, and conversely in England and Wales. Whether initially building by Scottish local authorities was an effect or a cause of the low level of activity in the private sector, once a sizeable stock of subsidized housing had been created it would (for reasons suggested elsewhere) tend to discourage speculative building activity or divert it to areas where local authorities were less active, namely England and Wales. It is also considered that in the inter-war period the Scottish system of valuation and rating had a similar effect. Differences in valuation procedures tended to place a greater share of rate-borne expenditure on the let or owner-occupied house in Scotland in comparison with the system in use in England and Wales, while the owner's rate liability added to the risks of speculative building.<sup>(3)</sup> With the abolition of owners' rates this particular factor is of purely historical significance.

A factor of continuing importance is that building costs are higher in Scotland.<sup>(4)</sup> Thus, on the simplest analysis even if the level and distribution of income in the two countries were the same, given the higher supply price of new houses in Scotland, demand for new houses would be lower and fewer would be built per head of population.

It has also been suggested that private building in the inter-war period was restricted by the lower priority given to expenditure on housing by the Scottish working man in comparison with his English counterpart—"whereas in England before the war the lower paid working man regarded 20% as quite a reasonable proportion to set aside for house room, in Scotland he would not readily allocate more than 15% of his income".<sup>(5)</sup> This attitude was not a new one. The Royal Commission on Housing in Scotland, appointed in 1912, had been disturbed by the unwillingness of some sections of the community to pay for better accommodation although they could afford to do so.<sup>(6)</sup> Protests at local authority rent increases and at the rents charged by new town corporations are evidence that it still persists.<sup>(7)</sup>

7.22. The main results of the developments of the past fifty years may now be summarized. Virtually no new houses have been added to the stock of privately owned dwellings to let. Consequently the existing stock is now old, much of it in poor repair and lacking in amenity while the actual number of houses is diminishing through demolition and sale for owner-occupation.

The private landlord has been, or is being, replaced by the local authority: a change not without some socially undesirable consequences, since the local authority may become the only supplier of rented accommodation in a particular area. Further, as houses are allocated by administrative decision discrimination against the newcomer is not only possible but probable<sup>(8)</sup> and may act as a deterrent to labour mobility.

<sup>(1)</sup> See, Scottish Home Department, *The Scottish Rents System*, Cmd. 6395, Edinburgh, H.M.S.O., 1960, paras. 29-31.

<sup>(2)</sup> A. A. Novitz, *op. cit.*, Chapter 3.

<sup>(3)</sup> See Cmd. 6395, *op. cit.*, paras. 13-17, 23-26 and 35-46.

<sup>(4)</sup> Through the higher standards of construction needed to keep out the weather, higher costs of site preparation, and transport charges on raw materials.

<sup>(5)</sup> Cmd. 6395, *op. cit.*, para. 28.

<sup>(6)</sup> Royal Commission on Housing in Scotland, *Report on the Housing of the Industrial Population of Scotland, Rural and Urban*, Cmd. 8731, Edinburgh, H.M.S.O., 1918. See the discussion of the demand for the one room house, paras. 675-685, and of the rents paid by tenants, paras. 689-693.

<sup>(7)</sup> Data collected in 1963 for the Commission of Inquiry into the Impact of Rates on Households (Ministry of Housing and Local Government and the Secretary of State for Scotland, Cmd. 2582, London, H.M.S.O., 1963, pp. 77 and 88) showed that housing costs formed a lower proportion of household income in Scotland than in England and Wales. But this is a reflection of the lower rents actually being paid in Scotland, not evidence of unwillingness to pay more for better housing.

<sup>(8)</sup> R. D. Crummond, *Allocation of Council Houses*, University of Glasgow Social and Economic Studies, Occasional Papers No. 1, Edinburgh, Oliver and Boyd, 1964, pp. 32-36.

Although most private enterprise building has been for owner-occupation, not all owner-occupiers have modern houses. Of course some live in superior older properties but others have bought old houses of poor quality, possibly in tenement blocks, because they were unable to rent accommodation.

Households renting from the local authority, or controlled unfurnished accommodation from a private landlord or owning their own home, may all be receiving some form of subsidy. But the size and incidence of subsidy are determined by historical accident, not need. For tenants the subsidy is attached to the house, not the family, and this tends to tie families to their present accommodation thus perpetuating low housing standards and leading to a misallocation of housing space.

### III

7.23. It has already been pointed out that the distribution of households by tenure in the Survey Area is rather different to that for Scotland as a whole (see Table 7.1), with a higher proportion of households living in houses owned by the local authority and correspondingly lower proportions renting from private landlords or owning their own accommodation. There are, of course, considerable variations within the Survey Area itself; the smaller the unit of comparison the greater these differences become.

Thus Table 7.5, which gives the tenure distribution as at the 1961 Census within each part of the Survey Area under the control of each of the

six local housing authorities with responsibilities in the Area, shows that 55 per cent of Falkirk households rented their houses from the local authority compared with 80 per cent in Denny and Dunipace. But within Falkirk there is one ward in which only 8 per cent of households rent from the council and another in which over 71 per cent do so, the percentages of owner-occupiers being 61 per cent and 11 per cent respectively in each ward. The last column of Table 7.5 gives total households in each local housing authority area as a percentage of all Survey Area households, thus the large burgh of Falkirk and that part of the Stirling County landward area within the Survey Area each contain about a third of the total number of households. Although the 1961 Census material is the latest complete data on tenure distribution<sup>(1)</sup> other evidence suggests that the proportion of public sector<sup>(2)</sup> housing has increased since then. Most of the houses completed in the four burghs within the Area during the five years from 31st March, 1961, to 31st March, 1966, were for public owners, as were 95 per cent of the houses under construction at the end of the period (see Table 7.6).

Comparable figures of new building in the county landward districts within the Survey

<sup>(1)</sup> The Housing Survey Sample was stratified by tenure (see Appendix, para. 2) and the ratio of public to private housing thereby built into the sample.

<sup>(2)</sup> Public Sector will be used throughout this Chapter as a collective term denoting houses owned by local authorities, the Scottish Special Housing Association and government departments.

TABLE 7.5  
*Number and percentage distribution of households by form of tenure in each local housing authority area within the Survey Area, 1961*

Local Housing Authority	Form of Tenure			All Forms		All households as a percentage of total households in the Survey Area
	Renting from a local authority, etc.	Renting from a private landlord	Owner-occupiers			
	%	%	%	%	thousands	%
<i>Large Burghs</i>						
Falkirk . . . . .	55	22	23	100	12.0	33
<i>Small Burghs</i>						
Glasgow . . . . .	61	16	23	100	5.5	15
Bo'ness . . . . .	54	51	15	100	3.1	8
Denny and Dunipace	80	10	10	100	2.5	6
<i>Countryside</i>						
Stirling . . . . .	70	13	17	100	12.6	35
(Eastern No. 1 and No. 2 and part of Central No. 2 District)						
West Lothian . . . . .	51	38	11	100	1.2	5
(Bo'ness Landward District)						
<b>Total Survey Area . . . . .</b>	<b>63</b>	<b>19</b>	<b>19</b>	<b>100</b>	<b>36.6</b>	<b>100</b>

Source: Derived from Census 1961, Sorted, Scale A enumeration district data

TABLE 7.6

*Houses completed in the Survey Area, March 1961—March 1965, and houses under construction, March 1966*

	Local Authority	Scottish Special Housing Association	Private Owners	All
(a) Completed				
Falkirk . . . . .	519	—	203	522
Glasgow . . . . .	957	547	107	1,411
Denny and Dunipace	190	—	1	191
Bo'ness . . . . .	545	12	21	568
All (Number) . . .	2,014	559	332	2,705
(Per cent) . . . .	80	—	12	100
(b) Under Construction				
Falkirk . . . . .	624	—	30	654
Glasgow . . . . .	269	—	28	297
Denny and Dunipace	10	—	—	10
Bo'ness . . . . .	123	—	1	129
All (Number) . . .	1,031	—	59	1,090
(Per cent) . . . .	95	—	5	100

*Source:* Derived from the *Housing Return for Scotland*, Scottish Development Department, Quarterly, Edinburgh H.M.S.O.

Area were not available. However, Table 7.7, which is based on a count of domestic ratable units from the Valuation Rolls, includes the entire Area. It shows the proportion of ratable units in the public and private sectors, but for

the year beginning May 1964, and thus is itself out of date.

Further, because the table refers to domestic ratable units, one of which may contain more than one household (or even no households if it

TABLE 7.7

*Percentage of local authority, etc., and privately owned domestic ratable units in each local housing authority area<sup>(1)</sup>; Survey Area, 1964-65*

Local Housing Authority	Local authority etc.	Privately owned	Both		All units as a percentage of total units in the Survey Area
	%	%	%	thousands	%
<i>Large Burgh</i>					
Falkirk . . . . .	59	41	100	12.4	32
<i>Small Burgh</i>					
Glasgow . . . . .	68	32	100	6.3	16
Denny and Dunipace . . .	82	18	100	2.4	6
<i>Councils</i>					
Stirling . . . . .	75	25	100	15.2	34
(Eastern No. 1 and No. 2 and part of Central No. 2 District)					
West Lothian . . . . .	55	45	100	4.5	12
(Bo'ness Burgh and Leaveland District)					
Total Survey Area . . . .	67	33	100	38.5	100

*Source:* The Valuation Rolls for the Burgh of Falkirk and the Councils of Stirling and West Lothian for the year 1964-65

<sup>(1)</sup> Bo'ness Burgh and Leaveland District together

is standing empty), it cannot be directly compared with the distribution of households given in Table 7.5. But it is known from the Housing Survey that shared rateable units are rare in the Area and thus the distributions of Table 7.7, when viewed in conjunction with those of Table 7.5, may be considered as evidence of an increase in the proportion of public sector housing since the Census of 1961. Changes within the private sector are more difficult to establish<sup>(1)</sup> but here data from the Housing Survey can be used. Over 60 per cent of the sample of private sector households interviewed either owned, or were buying, their own homes compared with 50 per cent of private sector households at the 1961 Census. Here again the figures are not directly comparable and must be regarded as indicating the direction of change rather than its absolute size. However the direction of change is that which would have been predicted from the discussion of Section II.<sup>(2)</sup>

7.24. With such a high proportion of local authority housing, the level of rents charged is obviously an important element in the Area housing situation. But each authority is entitled to pursue an independent policy and as, for the reasons explained in Section II, each will be receiving a different average Exchequer Subsidy per house, levels of rent and subsidy will vary between authorities. Since, throughout the rest of this Section, public sector housing will be treated as a single unit, this is a convenient point at which to comment on this variation.

A percentage distribution of public sector housing between the six local housing authority areas for 1964-65 is given below:

	%
Falkirk . . . . .	28
Denny and Dunipace . . . . .	8
Grangemouth . . . . .	16
Bo'ness . . . . .	9
Stirling County . . . . .	33
West Lothian County . . . . .	1
Total Survey Area . . . . .	100

While these figures also include houses belonging to the Scottish Special Housing Association and

government departments they provide a useful indication of the significance of the data for each authority presented in Tables 7.8 to 7.10.

Table 7.8 shows the source from which each authority met gross expenditure<sup>(1)</sup> on the housing revenue account in the year 1964-65. The percentage of expenditure covered by rent varies from 43 per cent in Falkirk to 23 per cent in West Lothian, the rate subsidy from 27 per cent in Falkirk and Grangemouth to 51 per cent in West Lothian, and the Exchequer subsidy from 20 per cent in Bo'ness to 28 per cent in Falkirk. Comparison of the percentage contribution from each source for the Area housing authorities with the averages for each type of authority, given in Table 7.4, shows that the two authorities which together control about two-thirds of local authority housing in the Area, Falkirk and the County of Stirling, have a slightly higher percentage rent contribution than the average for their type of authority.

In Table 7.9 the percentages of Table 7.8 have been applied to average gross expenditure per house in order to show the average contribution per house from each source in absolute terms. It then appears that although Falkirk recoups a higher percentage of gross expenditure in the

<sup>(1)</sup> The Valuation Rolls are of little help because of the difficulty of positively identifying owner-occupied properties.

<sup>(2)</sup> The increase in recent years in purchases, for owner-occupation, of houses with a rateable value of £20 or less (the category containing over 60 per cent of existing privately rented housing) is consistent with sales by landlords for owner-occupation. Material from the Register of Sales (see Appendix, para. 6) showed that although houses with a rateable value of £20 or less constituted 26 per cent of all the rateable units in the sample identified as owner-occupied, they formed 35 per cent of those bought by the present owner-occupier since the beginning of 1957 and 39 per cent of those bought between the beginning of January 1961 and the end of June 1965. Unfortunately it is not known how many of these houses were already owner-occupied before the present occupier bought them, and in the absence of this data the information remains open to other interpretation.

<sup>(3)</sup> Of which not less than 80 per cent consisted of loan charges.

TABLE 7.8  
*Local housing authorities with responsibilities in the Survey Area. (1) Housing revenue account; sources from which gross expenditure has been met, 1964-65*

Local Housing Authority	Rents <sup>(2)</sup>	Exchequer subsidy	Rate subsidy	Other income	Per cent
					All
<i>Large Borough</i>					
Falkirk . . . . .	42.6	28.1	26.6	2.6	100.0
<i>Small Borough</i>					
Grangemouth . . . . .	46.7	25.1	26.9	1.3	100.0
Bo'ness . . . . .	56.0	20.1	43.6	0.2	100.0
<i>County</i>					
Stirling . . . . .	37.6	24.2	34.5	3.7	100.0
West Lothian . . . . .	23.3	24.5	51.1	1.1	100.0

Source: As Table 7.4

<sup>(1)</sup> Excluding Denny and Dunipace which is not included in the *Rent Review* analysis

<sup>(2)</sup> Gross rent income before deduction of rebates and including rents from shops and other buildings

TABLE 7.9

*Local housing authorities with responsibilities in the Survey Area.<sup>(1)</sup> Housing revenue account: average gross expenditure per house and average contribution from each source, 1964-65*

Local Housing Authority	Average gross expenditure <sup>(2)</sup> per house	Contribution from			
		Rent <sup>(3)</sup>	Exchequer subsidy	Rate subsidy	Other income
	£ s.	£ s.	£ s.	£ s.	£ s.
<i>Large Burghs</i>					
Falkirk . . . . .	84 6	36 0	23 13	22 8	2 4
<i>Small Burghs</i>					
Glasgow . . . . .	95 3	44 8	23 12	25 13	1 4
Borness . . . . .	99 10	55 17	20 1	45 8	0 4
<i>Gentles</i>					
Stirling . . . . .	108 12	40 17	26 5	37 9	4 0
West Lothian . . . . .	114 18	26 16	28 2	58 15	1 5

*Source:* Derived from The Institute of Municipal Treasurers and Accountants, Scottish Branch, *Rating Review*, 1964-65, op. cit., Part 5, "Housing".

<sup>(1)</sup> Excluding Denny and Dunipape.

<sup>(2)</sup> Total gross expenditure for the year divided by the actual number of local authority houses as May 1965. Local authority houses are those provided under the Housing Acts but excluding old dwelling houses acquired.

<sup>(3)</sup> Gross rent income before deduction of rebates and including rents from shops and other buildings.

form of rent than does the County of Stirling, nevertheless because average gross expenditure is higher in Stirlingshire<sup>(1)</sup> the average absolute contribution per house from rent is higher in Stirling County than in Falkirk. Houses provided by the West Lothian County Council are the most heavily subsidised, both from the rates and the Exchequer, but this affects very few Survey Area residents directly.

Although the proportion of gross expenditure covered by Exchequer subsidy and the average Exchequer subsidy per house is different for each authority, the range of variation is much less than in the case of the rent and rate contribution. However the amounts raised via these two items are fixed by the housing authority itself and it therefore seems reasonable to conclude that differences in rent levels owe more to differences in policy than to the effects of historical accident on the distribution of central government aid.

7.25. The average rent contribution of Table 7.9 should not be confused with the average rent paid by the tenants. The former concept relates aggregate receipts during a given period of time to the number of houses at a specified time. But receipts may include revenue from sources other than house rents, while during the year changes may be made in rent levels and will almost certainly occur in the number of houses earning rent as some houses stand empty between lettings, new houses are occupied for the first time and old houses are closed or demolished. For these reasons the annual receipts from 'rent' averaged over the housing stock will differ from an average of the actual annual rents being paid by tenants at a given time and it is this figure which is given in Table 7.10. Since the average rent for each authority will depend partly on the

size distribution of its housing stock, the first column in the table gives average standard<sup>(2)</sup> rents for a four apartment house. The two remaining columns give averages for all sizes of house, the last column after allowing for the operation of any rent rebate schemes. The averages for the Survey Area as a whole were calculated by weighting the averages for each housing authority according to the percentage distribution given in para. 7.24. Figures for the new towns of Cumbernauld and East Kilbride, the Scottish Special Housing Association and the average for all Scottish local housing authorities are given for comparative purposes.

Average rents for four of the Survey Area housing authorities exceed the Scottish average. The estimated overall average for the Area is just over 6d. per week more than that for Scotland, 7½d. per week after allowing for rebates. But in making this comparison it must be remembered that the largest component of the Area averages, those for Stirling County, include houses in all parts of the county not just those in the Survey Area. Later in this Section, the remainder of which is to be devoted to the presentation of the Housing Survey results, further information will be given on the level and distribution of rents in the private as well as the public sector.

<sup>(1)</sup> Stirling County has a higher proportion of post-war houses (carrying heavier loan charges) than the burgh of Falkirk—70 per cent compared with 56 per cent. (Institute of Municipal Treasurers and Accountants, Scottish Branch, *Rating Review*, February 1966, Part 5, "Housing".)

<sup>(2)</sup> That is before the deduction of any rebates to which tenants may be entitled.

TABLE 7.10

*Average rents paid per annum for permanent local authority houses.<sup>(1)</sup> Survey Area local housing authorities, Cumbernauld and East Kilbride Development Corporations and Scottish average: November 1964*

	Average annual standard rent, 4 apt. houses	Average annual rent all sizes of house	
		Standard rent	Rent payable
	£ s.	£ s.	£ s.
<i>Survey Area Local Housing Authorities</i>			
<i>Boroughs</i>			
Falkirk . . . . .	40 5	35 8	34 19
Glasgow . . . . .	47 6	40 1	39 0
Borness . . . . .	42 0	37 10	37 10
Denny and Dunipace . . . . .	41 3	38 10	38 10
<i>Counties</i>			
Stirling . . . . .	42 16	39 15	39 5
West Lothian . . . . .	29 1	27 10	27 10
<i>All Survey Area</i> . . . . .	42 9	38 3	37 13
<i>New Town Development Corporations (General Needs Houses)</i>			
Cumbernauld . . . . .	67 16	64 9	58 4
East Kilbride . . . . .	60 19	58 18	52 16
<i>Scottish Special Housing Association (All Schemes)</i>	46 2	45 1	42 2
<i>Scotland</i> . . . . .	41 1	36 15	36 1

Source: Scottish Development Department, *Rents of Houses Owned by Local Authorities in Scotland, 1964*, Cmd. 2593, Edinburgh H.M.S.O., 1965

<sup>(1)</sup> Including acquired houses.

7.26. The Housing Survey was based on a random sample of domestic rateable units, stratified by ownership into the two basic categories of public and private housing, to permit the use of a higher sampling fraction in the more varied private sector.<sup>(1)</sup> Estimates relating to all housing in the Area have been calculated by weighting the samples from each sector together in the proportions in which each of the two categories of rateable unit occurred in the Valuation Rolls for 1964-65 from which the samples were drawn. Sample distributions have been converted into estimates of actual numbers of houses by applying them to the total number of domestic rateable units in the Area, 38.8 thousand (see Table 7.7).

The total sample of 1,071 rateable units was composed of 311 units from the public sector and 760 from the private sector. The elimination of ineligible units during fieldwork reduced the total to 1,045 (309 public and 738 private) and interviews were obtained in 949 of these (291 public, 658 private). But a rateable unit may have more than one household living in it. In fact only four of the 949 rateable units were occupied by more than one household,<sup>(2)</sup> one in the public sector and three in the private sector, each with two households, giving a total of 953 households.

Thus information is available for three different sizes of population depending on whether households or rateable units are under discussion and,

if rateable units, whether or not the information in question could be gained without an interview, either by exterior inspection (its physical environment) or from some other source (its rateable value) or whether an interview was essential (for example to determine the presence, or absence, of amenities).

TABLE 7.11

*The size of the sample population*

	Private Sector	Public Sector
Rateable units selected: . . . . .	760	311
eligible: partial data . . . . .	738	309
full data . . . . .	658	291
Households interviewed: . . . . .	661	292

7.27. Apart from the major division between public and private housing, form of tenure has been treated as a household attribute because it could only be ascertained by interview. Households have been divided into three tenure groups by regarding the tenants of rateable units in the

<sup>(1)</sup> The selection of the sample is described in para. 2 of the Appendix to this Chapter.

<sup>(2)</sup> This does not rule out the possibility of concealed sharing. A group of people may be living as one household from necessity rather than choice, a young married couple living with parents for example.

public sector sample as one category and subdividing the occupants of ratable units in the private sector into owner-occupiers and tenants. The public sector includes ratable units owned by the Scottish Special Housing Association and government departments as well as the local authorities. The number of households in the sample renting from each type of authority is given below.

Local authorities . . . . .	269 (92%)
Scottish Special Housing Association . . . . .	17
Government departments . . . . .	3
Other . . . . .	4
<b>All . . . . .</b>	<b>292 (100%)</b>

In terms of tenure, owner-occupiers form a comparatively homogeneous group, the main distinction being between households owning outright and those still buying their houses. As the following figures show, the majority of owner-occupiers in the private sector sample owned outright.

<i>Owner-occupiers</i>	<i>no.</i>	<i>per cent</i>
Owning outright . . . . .	288	70.2
On mortgage . . . . .	122	29.8
	<b>410</b>	<b>100.0</b>

However the category of private sector tenants is far from homogeneous since it em-

braces households holding their accommodation by practically every form of tenure from every type of landlord. These households were in fact classified into three groups,<sup>(1)</sup> the groups and the number of sample households in each are given below:

<i>Tenants of property companies and individual landlords (other than relatives of the tenant)</i>	<i>no.</i>	<i>per cent</i>
Renting unfurnished . . . . .	111	44.2
Renting furnished . . . . .	5	2.0
<i>All other cases . . . . .</i>	<b>135</b>	<b>53.8</b>
<i>All private sector tenants . . . . .</i>	<b>251</b>	<b>100.0</b>

The residual category, the largest,<sup>(2)</sup> includes households renting from Housing Associations, cases in which the landlord-tenant relationship was complicated by employment and ties of kinship, and eighteen households living in accommodation which had been acquired by the local authority. The composition of the group is given in the accompanying table.

<sup>(1)</sup> The data for each group was tabulated separately but because of the small size of the sample, results will be given here for private sector tenants as a whole.

<sup>(2)</sup> The tenure classification is that of the Scottish Housing Survey and is possibly not the most revealing for Survey Area conditions.

Type of Landlord	Form of tenure				All forms
	Renting unfurnished	Renting furnished	With employment <sup>(1)</sup>	Miscellaneous, including rent free	
Employer . . . . .	—	—	55	—	55
Relative . . . . .	11	1	1	—	14
Housing Association . . . . .	4	—	14	—	18
Other <sup>(2)</sup> (including not known) . . . . .	32	1	18	2	48
<b>All types . . . . .</b>	<b>47</b>	<b>2</b>	<b>83</b>	<b>2</b>	<b>135</b>

<sup>(1)</sup> Including cases where the house went with the job of a deceased member of the family.

<sup>(2)</sup> Including 18 households living in accommodation taken over by the local authority.

TABLE 7.12  
*Ratable units by type of building and year of construction*

Type of Building	Year of Construction					All
	Before 1901	1901-1928	1928-1944	1945 or later	Not known	
	per cent					
Houses: detached . . . . .	1.9	0.8	2.2	2.7	0.3	7.9
semi-detached . . . . .	3.0	1.6	14.1	14.9	0.2	34.0
terrace . . . . .	1.5	1.0	2.9	6.8	0.4	12.6
Flat: block . . . . .	12.4	4.0	15.3	12.2	—	44.1
conversion . . . . .	0.3	0.0	—	0.0	—	0.4
Other . . . . .	0.4	0.1	0.1	0.3	—	1.0
All types . . . . .	19.5	7.8	34.6	36.9	1.1	100.0

7.28. It will be convenient to begin this description with the buildings themselves and Table 7.12 shows how the ratable units in the sample are distributed by building type and estimated date of construction.

To find that the two most common building types are semi-detached houses and flats in blocks is hardly surprising, but while most of the semi-detached houses have been built since 1918, 28% of the ratable units classified as being flats in blocks pre-date the First World War. Most of the units surviving since before 1900 are of this type and indeed nineteenth century blocks of flats constitute 12 per cent of the entire housing stock of the Area (see Table 7.12).

About 20 per cent of all ratable units were built before 1900 (see Table 7.13) but, as might be expected, the percentage is much higher for the private sector, over 50 per cent, and for the public sector much lower, 5 per cent.

TABLE 7.13

*Percentage distribution of ratable units in each sector by estimated date of construction*

	Private Sector	Public Sector	Both
Before 1861 . . .	4.1	0.3	1.6
1861-1880 . . .	4.1	0.3	1.6
1881-1900 . . .	42.5	3.6	16.4
1901-1918 . . .	19.1	2.3	7.8
1919-1944 . . .	22.1	40.8	34.6
1945 onwards . . .	6.1	52.1	36.9
Not known . . .	2.0	0.6	1.1
All ages . . .	100.0	100.0	100.0
	52.6	67.4	

Tables 7.14 and 7.15 give distributions of ratable units, classified by type and age, by form

TABLE 7.14

*Percentage distribution of ratable units in each type-age class by form of tenure*

	Private Sector			Public Sector	Both
	Owner-occupied	Rented	All		
A house built: before 1901 . . .	72.5	19.6	92.1	7.9	100.0
1901-1918 . . .	69.0	11.0	80.0	20.0	100.0
after 1918 . . .	13.2	3.2	16.4	83.6	100.0
A flat built: before 1901 . . .	36.9	45.4	82.3	17.7	100.0
1901-1918 . . .	41.0	41.0	82.0	18.0	100.0
after 1918 . . .	2.0	5.0	7.0	93.0	100.0
All other types of ratable unit: 1918 or before . . .	70.0	30.0	100.0	0	100.0
after 1918 . . .	12.0	25.6	37.6	62.4	100.0
Not known . . .	36.4	24.3	60.7	39.3	100.0
All . . .	19.9	11.9	31.8	68.2	100.0

TABLE 7.15

*Percentage distribution of ratable units in each tenure group by type and age*

	Private Sector			Public Sector	Both
	Owner-occupied	Rented	Both		
A house built: before 1901 . . .	21.7	9.7	17.2	0.7	3.9
1901-1918 . . .	12.2	3.2	8.0	1.0	3.5
after 1918 . . .	13.2	11.7	22.5	53.6	43.7
A flat built: before 1901 . . .	22.1	45.3	50.9	3.1	11.9
1901-1918 . . .	8.0	13.4	10.0	1.0	3.9
after 1918 . . .	2.0	12.1	6.4	39.5	29.0
Any other types of ratable unit: 1918 or before . . .	1.7	1.2	1.5	0	0.5
after 1918 . . .	0.2	0.8	0.5	0.3	0.4
Not known . . .	2.2	3.4	2.3	0.7	1.2
All . . .	100.0	100.0	100.0	100.0	100.0



of tenure. Table 7.14 shows the percentage of ratable units of each type-age class in each tenure group while Table 7.15 gives the percentage of the ratable units in each tenure group in each type-age category. Thus 75 per cent of all houses built before 1900 are owner-occupied compared with 57 per cent of all flats built in the same period (see Table 7.14) but houses built before 1900 form only 22 per cent of all owner-occupied dwellings (see Table 7.15). Even so there are more owner-occupied ratable units dating from before 1900 than after 1918. This statement is also true of privately rented dwellings of which about 45 per cent are flats built before 1900 (Table 7.15). Very few ratable units in the public sector were built before 1918 and since then more houses have been built than flats.

7.29. Tables 7.16 to 7.19 refer to the size of the ratable unit as indicated by the number of rooms.<sup>(1)</sup> About a quarter of all ratable units, 22 per cent of the combined sample (see Table 7.15), have three or fewer rooms, but as Table 7.16 shows, nearly 9 per cent of the units in the private sector sample had seven or more rooms and almost a quarter two or one room, while in the public sector sample there were no units with more than six rooms but 83 per cent with four or five.

TABLE 7.16

*Percentage distribution of ratable units in each sector by the number of rooms, including all kitchens, in the ratable unit*

Number of rooms	Private Sector	Public Sector	Both Sectors
1 . . .	0.7	0.7	0.7
2 . . .	23.9	2.3	9.3
3 . . .	16.1	9.1	12.0
4 . . .	16.0	44.4	35.6
5 . . .	16.8	39.4	32.7
6 . . .	12.0	3.9	6.6
7 or more	8.9	0.0	2.9
Not known	0.1	0.0	—
All sizes	100.0	100.0	100.0
	32.6	67.4	

Table 7.17 gives the average number of rooms per ratable unit by sector and date of construction. The overall average number of rooms per unit is slightly higher in the public than in the private sector although for any given period of construction the average private sector house has more rooms than its public sector counterpart. The explanation of this apparent anomaly is that the private sector contains a high proportion of older, smaller ratable units. Some 45 per cent of the private sector sample date from the period 1881-1900 (see Table 7.13) with the lowest room average (see Table 7.17).

The distribution of ratable units with each number of rooms by date of construction and between the two sectors is shown by Table 7.18.

<sup>(1)</sup> All kitchens have been counted as rooms. See the Appendix to this Chapter, para. 10

TABLE 7.17

*Average number of rooms, including all kitchens, per ratable unit by sector and estimated date of construction*

	Private Sector	Public Sector	Both Sectors
Before 1881 . . .	4.2	0	4.2
1881-1890 . . .	3.7	3.5	3.6
1891-1900 . . .	3.6	2.5	3.4
1901-1910 . . .	4.2	3.7	4.0
1911-1944 . . .	4.8	4.3	4.6
1945 or later . . .	5.5	4.6	5.0
Age unknown . . .	4.2	5.5	4.7
All ages—average . . .	4.1	4.3	4.3

TABLE 7.18

*Percentage distribution of ratable units of specified sizes in each sector by date of construction*

	Private Sector	Public Sector	Both
<i>Two rooms<sup>(1)</sup> or less</i>			
Built before 1900 . . .	73.7	55.5	70.1
1901-1908 . . .	21.7	32.2	21.8
1909-1944 . . .	4.0	0	3.2
1945 or later . . .	0.6	22.2	4.9
All ages . . .	100.0	100.0	100.0
	80.0	20.0	
<i>Three rooms<sup>(1)</sup></i>			
Built before 1900 . . .	88.8	17.9	42.3
1901-1910 . . .	21.6	3.6	12.2
1911-1944 . . .	8.8	28.6	19.1
1945 or later . . .	0.8	50.0	26.4
All ages . . .	100.0	100.0	100.0
	47.9	52.1	
<i>Four rooms<sup>(1)</sup></i>			
Built before 1900 . . .	36.4	2.2	7.1
1901-1910 . . .	16.8	0	2.6
1911-1944 . . .	45.4	50.4	49.6
1945 or later . . .	3.4	47.4	40.7
All ages . . .	100.0	100.0	100.0
	15.2	84.8	
<i>Five rooms<sup>(1)</sup></i>			
Built before 1900 . . .	37.9	0	7.0
1901-1910 . . .	12.9	2.5	4.4
1911-1944 . . .	37.9	38.3	38.3
1945 or later . . .	11.4	59.2	50.3
All ages . . .	100.0	100.0	100.0
	18.3	81.7	
<i>Six rooms<sup>(1)</sup> or more</i>			
Built before 1900 . . .	36.4	0	27.0
1901-1910 . . .	22.7	0	16.9
1911-1944 . . .	26.0	27.3	26.3
1945 or later . . .	14.9	72.7	29.8
All ages . . .	100.0	100.0	100.0
	74.3	25.7	

<sup>(1)</sup> Including all kitchens

TABLE 7.19

*Percentage distribution of households with each number of rooms (including all kitchens) by form of tenure, giving the average number of rooms per household in each tenure group*

Number of rooms	Private Sector			Public Sector	Both Sectors	
	Owens	Rents	All			
1 . . . . .	14.8	85.7	100.0	0	100.0	0.0
2 . . . . .	29.4	48.0	77.5	22.5	100.0	9.5
3 . . . . .	28.5	26.9	56.1	49.9	100.0	10.8
4 . . . . .	9.8	5.9	15.2	84.8	100.0	36.6
5 . . . . .	14.7	3.8	18.5	81.5	100.0	33.5
6 . . . . .	34.9	7.1	62.0	38.0	100.0	6.8
7 or more . . . . .	82.8	17.2	100.0	0	100.0	2.9
All sizes . . . . .	19.7	12.1	31.8	68.2	100.0	100.0
Average number of rooms . . . . .	4.7	5.3	4.1	4.5	4.3	

*Note:* This table is derived from household data. The division of households with each number of rooms between the public and private sectors will therefore differ from the division of ratable units of each size given in Table 7.18, and the distribution of all households by the size of their accommodation (given in the last column of Table 7.18) will differ from the distribution of ratable units by number of rooms (given in the last column of Table 7.16).

Thus 80 per cent of all one and two roomed dwellings are in the private sector, and of these nearly three quarters are relics from the nineteenth century. Three roomed dwellings are more or less evenly distributed between the two sectors but, while over two-thirds of those in the private sector were built before 1900, over half the public sector dwellings of this size have been built since 1945. Four and five roomed units, about two-thirds of the entire housing stock (see Table 7.13), are mostly publicly owned with the overwhelming majority built since 1918. Private sector dwellings of this size are older, at least a third built before 1900 and relatively few since 1945 (see Table 7.18). Three-quarters of the dwellings with six or more rooms are in the private sector and about a third of these too, are at least 65 years old.

Table 7.19, which gives the distribution by tenure of households with each number of rooms and the average number of rooms per household in each tenure category, demonstrates the difference in size of accommodation per household within the private sector between those renting and those owning their own homes.

TABLE 7.20

*Estimated number of dwellings with three rooms or less built before 1918*

	thousands		
	Private Sector	Public Sector	Both
<i>Two rooms or less<sup>(1)</sup></i>			
Built before 1901	2.3	0.4	2.7
1901-1918	0.7	0.2	0.9
<i>Three rooms<sup>(2)</sup></i>			
Built before 1901	1.5	0.4	2.0
1901-1918	0.5	0.1	0.6

<sup>(1)</sup> Including all kitchens

7.20. In absolute terms there are nearly four thousand ratable units in the Area with two, or fewer, rooms, and about 2.7 thousand of them have now been standing for at least 65 years (see Table 7.20).

A further 4.7 thousand dwellings have only three rooms and, of these, nearly 2 thousand are not less than 65 years old. Attention has been drawn to the number of small, older dwellings because while neither small size nor old age alone is necessarily an indicator of poor housing it is highly probable that houses possessing both qualities will lack the plumbing and toilet facilities necessary to provide adequate accommodation even for the small households for which, by modern standards of occupancy, they might be considered suitable.

It is not suggested that the Area has proportionately more small dwellings than the rest of Scotland—if anything the reverse is the case. The 1961 Census showed that 58 per cent of all dwellings in Scotland had three rooms or less<sup>(1)</sup> while only 22 per cent of the ratable units in the Survey Area sample came into this category. This comparison requires qualification because the figures refer to different dates and are based on slightly different definitions of a room.<sup>(2)</sup> But even so, in view of the untypically high proportion of modern council houses in the Area it

<sup>(1)</sup> Census 1961, Scotland, Vol. 4, Housing and Households, Part I, p. xxvii, Edinburgh, H.M.S.O., 1968.

<sup>(2)</sup> The Census was taken five years before the Housing Survey, five years in which the proportion of small dwellings in Scotland would have been substantially reduced if the trend of 1951-1961 had continued (Census 1961 Scotland, Vol. 4, Part I, *op. cit.*, p. xxviii). On the other hand, in the Housing Survey all kitchens were counted as rooms whereas the Census only included kitchens which were not used as bedrooms. This difference would reduce the relative proportion of small dwellings in the Survey Area by placing the dwellings of households which did not eat in the kitchen into a higher room number category in the Housing Survey than they would have been placed in by the Census.

Percentage distribution of ratable units by sector, state of fitness and estimated future life, and the estimated number of ratable units in each category of fitness

	Private Sector	Public Sector	Both Sectors	
			%	thousands
Unfit . . . . .	6.0	1.1	5.1	2.0
Ft, with an estimated future life of: less than 5 years . . . . .	1.5	0.9	2.2	0.8
5 years but under 15 years . . . . .	8.7	1.5	10.2	4.0
15 years but under 30 years . . . . .	9.1	14.5	23.6	9.2
30 years or more . . . . .	9.1	49.0	58.1	22.5
No information . . . . .	0.4	0.4	0.8	0.3
All categories . . . . .	32.6	67.4	100.0	38.8

seems reasonable to conclude that the Area has relatively fewer small dwellings than Scotland as a whole.

7.31. Just over 5 per cent of all ratable units in the sample were, in fact, considered to be unfit for habitation.<sup>(1)</sup> On this basis there are 2 thousand unfit units in the Area, the majority in the private sector (see Table 7.21). Two per cent of the sample units were given an estimated life of less than five years and a further 10 per cent a life of between 5 and 15 years.

Table 7.22 gives the distribution of ratable units in each fitness category by the number of rooms and Table 7.23 the distribution of units with each number of rooms by fitness and estimated future life. Thus while over half of all unfit units have one, or two, rooms and only 10 per cent four or more (see Table 7.22), over 70 per cent of all one and two roomed units were classified as fit (see Table 7.23).

But the concept of 'unfitness' is a condemnatory one and that of 'fitness' purely negative—the absence of the attributes of 'unfitness'. Just how unreliable an indicator of acceptable housing a classification of fitness is, is demonstrated by Table 7.24.

A ratable unit can be 'fit' even though it lacks a W.C. and while it is not surprising to find that 87 per cent of unfit dwellings are without fixed baths, 3 per cent of units classed as fit and with a life of more than 15 years, just under a thousand,<sup>(2)</sup> are in the same condition.

Table 7.25 gives the distribution of the sample by the combination of amenities installed and the estimated date of construction of the ratable unit. Nearly 80 per cent of all the units in the sample possess the three basic amenities of a fixed bath, a W.C. in or attached to the dwelling and a hot water supply. Just over 7 per cent, nearly 3 thousand units, have fixed baths and W.C.'s but lack hot water: these are mostly public sector houses built between 1919 and 1945. A further 3 per cent, that is 1.2 thousand units, the majority dating from before 1901, lack baths and hot water, while just over 11 per cent, or 4.3 thousand units of which 5.2 thousand were built in the nineteenth century, lack all three amenities.

<sup>(1)</sup> For the definition of fitness and the method of classification used in this Survey please see para. 6 of the Appendix.

<sup>(2)</sup> 3 per cent of an estimated 31.7 thousand units (see Table 7.21).

TABLE 7.22

Percentage distribution of ratable units in each category of fitness and estimated future life, by the number of rooms

Fitness and estimated future life of ratable unit	Number of rooms <sup>(1)</sup>						
	1 and 2	3	4	5	6 or more	Not known	All sizes
Unfit . . . . .	54.8	35.4	4.4	4.4	0.9	0.0	100.0
Ft, with an estimated life of:							
less than 5 years . . . . .	28.5	14.2	39.5	21.9	2.0	0.0	100.0
5 years but under 15 years . . . . .	40.1	27.3	13.2	11.0	8.4	0.0	100.0
15 years or more . . . . .	9.0	8.5	40.5	37.4	10.4	0.1	100.0
All fit ratable units . . . . .	7.7	30.7	37.4	34.2	10.0	—	100.0
All ratable units . . . . .	10.0	12.0	35.6	32.7	9.7	—	100.0

<sup>(1)</sup> Including all kitchens

TABLE 7.23

*Percentage distribution of ratable units with each number of rooms by the fitness and estimated future life, and the average number of rooms per unit in each category of fitness and life*

Fitness and estimated future life of ratable unit	Number of rooms <sup>(1)</sup>						Average number of rooms
	1 and 2	3	4	5	6 or more	All sizes	
<i>Unfit</i> . . . . .	27.9	14.9	0.6	0.7	0.5	5.1	2.6
<i>Ft</i> , with an estimated life of:							
less than 5 years . . . . .	6.3	2.6	2.1	1.5	0.5	2.2	3.6
5 years but under 15 years . . . . .	41.0	23.2	3.8	3.4	8.9	10.2	3.2
15 years but under 30 years . . . . .	18.5	26.6	25.6	24.0	23.8	23.6	4.3
30 years or more . . . . .	6.2	31.1	69.5	69.6	64.1	59.1	4.6
<i>All fit ratable units</i> . . . . .	72.1	85.6	98.9	98.5	97.3	99.1	4.3
<i>No information</i> . . . . .	0.0	1.5	0.4	0.8	2.2	0.8	4.7
<i>All ratable units</i> . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	4.3

<sup>(1)</sup> Including all kitchens

The concentration of ratable units without amenities in the private sector and, in particular, the comparatively poor position of the private sector tenant, is immediately apparent from Table 7.26. Although only 12 per cent of the unshared ratable units in the sample were privately rented, this group contains more than half of the units without fixed baths, about the same proportion of those without W.C.'s and just over a third of the units without fixed washbasins and hot water.

7.32. A further limitation of the statutory concept of fitness is that it is based solely on the attributes of the building without regard to its surroundings, although these are of vital importance to the well-being of the occupants of the

house. Members of the Edinburgh team were particularly interested in the possibility of improving residential environments and, in order to assess the extent of the problem, developed a scheme of classification of environments.<sup>(1)</sup> Table 7.27 gives the distribution of the units in the sample classified in accordance with this scheme and by their state of fitness and expected future life. Just over half the units were considered to have a 'fair + ' environment (group c), that is, with adequate segregation from traffic, garden space and garage provision, but less than 4 per cent qualified for a higher grade. Units located on a main traffic route, without a front

<sup>(1)</sup> This scheme is described in the Appendix to this Chapter. See para. 7.

TABLE 7.24

*Percentage of all ratable units in each fitness category lacking fixed baths, washbasins, sinks, W.C.s and running hot water at three points*

Unfit	Fit with an estimated life of:		All categories	
	Less than 15 years	15 years or more		
<i>Without:</i>				
Fixed bath . . . . .	86.8	69.2	3.2	14.1
Fixed washbasin . . . . .	90.9	61.1	11.3	21.2
W.C. in or attached to dwelling . . . . .	79.7	46.3	1.8	10.8
Fitted sink . . . . .	0.0	0.0	0.0	0.0
Running hot water at three points . . . . .	92.9	62.6	11.7	21.6

*Note:* Columns and rows should not add to 100.0%.

TABLE 7.25

*Percentage distribution of rateable units by the presence or absence of fixed bath, W.C. in or attached to the dwelling and running hot water at three points, and the estimated date of construction*

	Estimated year of construction						All dates	
	Before 1901	1901-1918	1919-1945	After 1945	Not known			
							%	thousands
Has all three basic amenities . . . . .	7.0	4.0	29.6	37.1	0.9		78.5	30.5
Has bath and W.C., but lacks hot water . . . . .	0.7	0.6	5.9	0.0	0.0		7.2	2.8
Has bath and hot water, but lacks W.C. . . . .	—	—	—	—	—		—	—
Has hot water and W.C., but lacks bath . . . . .	—	—	—	—	—		0.0	—
Has bath, but lacks W.C. and hot water . . . . .	—	—	—	—	—		—	—
Has hot water, but lacks bath and W.C. . . . .	—	—	—	—	—		0.0	—
Has W.C., but lacks bath and hot water . . . . .	2.3	0.7	—	0.0	—		3.1	1.2
Lacks all three . . . . .	8.3	2.1	0.5	0.0	0.1		11.1	4.3
All rateable units . . . . .	10.3	7.4	36.0	37.1	1.1		100.0	38.8

gardens, in an area lacking trees and with kerbside parking only, 14 per cent of the total, were placed in the poorest environmental group (group a). The remaining 29 per cent, possessing some of the attributes of the worst and a good environment, were placed in an intermediate grouping (group b). The majority of 'unfit' units are also of poor (a) environment but there are about a thousand 'fit' units with an expected life of fifteen years or more in the worst category of environment (2.7 per cent of all units) and a

further 9 thousand (23.1 per cent of all units) with a life of fifteen years or more in the intermediate category (group b).

The association of poor environment with old age is clear from Table 7.28. Converting the percentage distribution of this table into absolute terms, of the 5.3 thousand units with the worst environment, 4.2 thousand were built before 1901 while of the total of 7.4 thousand units built before 1901 less than 900 have a 'fair +', or better, environment (groups c, d and e).

TABLE 7.26

*Percentage distribution of unshared rateable units lacking a fixed bath, a fixed washbasin, a W.C. in or attached to the dwelling and running hot water at three points by form of tenure, showing also the total number of units without each amenity as a percentage of all units and the percentage of all units in each tenure category*

	Private Sector			Public Sector	Both Sectors	Those lacking as percentage of all rateable units
	Owner-occupiers	Tenants	All			
Without:						
A fixed bath . . . . .	36.6	51.6	88.3	11.7	100.0	14.1
A fixed washbasin . . . . .	26.5	37.0	63.5	36.5	100.0	21.2
W.C. in or attached to dwelling . . . . .	33.0	54.0	67.0	12.9	100.0	10.6
Running hot water at three points . . . . .	26.6	36.4	63.2	36.6	100.0	21.7
All unshared rateable units . . . . .	19.8	12.0	31.8	68.2	100.0	—

TABLE 7.27

*Percentage distribution of ratable units by fitness and life and physical environment, and the estimated number of ratable units in each category of environment*

Fitness and estimated future life of ratable unit	Physical environment							All
	a (Poor)	b (Fair)	c (Fair +)	d (Good)	e (Very Good)	Other	Not known	
Uglt . . . . .	3.5	1.4	0.0	0.0	0.0	0.1	0.0	5.1
Fit, with an estimated future life of:								
less than 5 years . . . .	1.2	0.3	0.7	0.0	0.0	0.1	0.0	2.2
5 years but under 15 years	6.2	3.7	0.2	—	0.0	—	—	10.2
15 years but under 30 years . . . . .	2.4	11.0	9.8	0.2	0.0	0.1	0.0	23.6
30 years or more . . . .	0.3	12.1	41.3	2.5	0.9	0.8	0.2	58.1
All fit ratable units . . . .	10.1	27.0	52.0	2.8	0.9	1.1	0.3	94.1
No information . . . . .	0.1	—	0.0	0.0	0.0	0.4	0.3	0.8
All ratable units	%	13.7	28.5	52.0	2.8	0.9	1.6	100.0
	thousands	5.5	11.1	20.2	1.1	0.3	0.6	38.8

TABLE 7.28

*Percentage distribution of ratable units by physical environment and estimated date of construction*

Estimated date of construction	Physical environment							All
	a (Poor)	b (Fair)	c (Fair +)	d (Good)	e (Very Good)	Other	Not known	
Before 1901 . . . . .	10.9	6.2	1.5	0.2	0.0	0.6	—	19.4
1901-1918 . . . . .	1.9	3.7	1.8	0.2	0.0	0.1	0.0	7.8
1919-1944 . . . . .	1.1	12.6	20.5	0.3	0.0	0.2	0.2	35.0
1945 or later . . . . .	0.0	5.6	27.9	2.0	0.9	0.3	0.0	36.7
Not known . . . . .	0.1	0.2	—	0.0	0.0	0.5	0.2	1.1
All . . . . .	14.0	28.4	51.8	2.8	0.9	1.7	0.5	100.0

Note: The distribution of all units by physical environment given in this table differs slightly from that of Tables 7.27 and 7.29, because this table is based on a different population (see para. 7.25).

TABLE 7.29

*Percentage distribution of ratable units by physical environment and the number of rooms, showing the average number of rooms per ratable unit for each environmental category*

Number of rooms <sup>(1)</sup> in ratable unit	Physical environment							All
	a (Poor)	b (Fair)	c (Fair +)	d (Good)	e (Very Good)	Other	Not known	
1 or 2 . . . . .	6.5	3.0	0.4	0.0	0.0	—	0.0	10.0
3 . . . . .	4.0	4.2	3.0	0.7	0.0	0.1	—	12.0
4 . . . . .	1.8	11.0	20.8	0.8	0.7	0.3	0.2	35.6
5 . . . . .	1.0	7.2	21.9	0.7	0.2	0.7	—	32.7
6 or more . . . . .	0.5	3.1	4.9	0.5	0.0	0.5	0.2	9.7
All . . . . .	13.7	28.5	52.0	2.8	0.9	1.6	0.5	100.0
Average number of rooms . .	2.9	4.2	4.6	4.5	4.5	5.5	4.4	4.3

<sup>(1)</sup> Including all kitchens.

Since most ratable units with three rooms, or less, date from the nineteenth century, it is to be expected that a high proportion of them will be of a low environmental standard. This expectation is borne out by Table 7.29. Houses in the worst category of environment have an average of 2.9 rooms compared with an average of 4.3 rooms for all units in the sample. 10 per cent of the sample, giving an estimate of 3.9 thousand units, have one or two rooms but less than 150 of them (0.4 per cent of all units) have a 'fair +' environment (group c). Three roomed dwellings are a little better; almost a third of them were classified as not less than 'fair +', but even so nearly 30 per cent of ratable units with a 'poor' environment (group a) had three rooms although only 12 per cent of all units were of this size. In fact units with three rooms or less constitute just over three-quarters of all units with worst environment.

Since units with a 'poor' environment (group a) are both old and small it follows that the majority (78 per cent) are in the private sector where they form a third of all ratable units. As far as building type is concerned, just under 80 per cent of the sample units in environmental category a, were flats in blocks.

7.33. It is now time to consider the people, the differences in the social characteristics of households in each of the three main tenure groups and also the incidence of overcrowding and underoccupation, and of lack of amenity. Tables 7.30 and 7.31 are concerned with household size and composition. Just over 40 per cent of all households in the combined sample were of one or two persons. Nearly 59 per cent were without children under 16 and almost 69 per cent contained no old people. From Table 7.30 it can be seen that public sector households are larger and have more children than those of owner-occupiers and private tenants. The public sector has fewer one and two person households but a higher percentage of households of six or more persons than either of the two private sector categories. Rather less than 57 per cent of the households in the public sector sample were without children compared with 65 per cent of owner-occupiers and 60 per cent of private tenants. 5 per cent of public sector households had four or more children, twice the percentage of private sector tenant households in that category. However the distribution of households by the number of old people shows little difference between the three tenure groups.

In Table 7.31 households have been classified by the age of the housewife and by household type.<sup>(1)</sup> The most noticeable point concerning the distribution by age of housewife is the low percentage of public sector housewives aged under 25-4 per cent compared with over 10 per cent in each of the two private sector categories and 6 per cent for the combined sample. In the distribution by household type it is rather surprising to find that the public sector has the highest percentage of households consisting of a solitary individual aged under 60, but not that it also has the lowest percentage of small families and small adult households and the highest percentage of households classified as large adult

TABLE 7.30

*Percentage distribution of households in each tenure group by the total number of persons in the household, the number of children and the number of old people*

	Owner-occupiers	Private tenants	Public sector tenants	All households
<i>Number of persons in household:</i>				
1 . . . . .	15.6	18.3	12.7	15.9
2 . . . . .	33.2	30.7	24.7	27.1
3 . . . . .	21.5	19.9	21.6	21.0
4 . . . . .	18.3	13.9	21.6	20.0
5 . . . . .	8.5	8.4	11.0	10.2
6 or more . . . . .	2.7	4.4	8.5	6.9
Not known . . . . .	0.2	0.4	0.0	0.1
All households . . . . .	100.0	100.0	100.0	100.0
<i>Average number of persons . . . . .</i>	2.4	2.4	3.2	3.1
<i>Number of children (aged under 16) per household:</i>				
0 . . . . .	64.7	59.6	56.5	59.5
1 . . . . .	18.8	18.6	18.0	18.4
2 . . . . .	12.2	13.2	13.4	13.1
3 . . . . .	4.9	6.4	6.5	6.2
4 or more . . . . .	1.4	2.4	4.8	3.6
All households . . . . .	100.0	100.0	100.0	100.0
<i>Average number of children . . . . .</i>	0.6	0.7	0.9	0.8
<i>Number of old people (aged 65 or more) per household:</i>				
0 . . . . .	64.3	64.8	63.4	63.8
1 . . . . .	23.8	24.4	24.0	24.0
2 . . . . .	11.2	10.8	11.6	11.3
3 or more . . . . .	0.5	0.0	1.0	0.3
All households . . . . .	100.0	100.0	100.0	100.0
<i>Average number of old people . . . . .</i>	0.5	0.5	0.3	0.5
All households . . . . .	19.7	12.1	68.2	100.0

and large families. Private sector tenants have the lowest percentage of larger adult households and the highest percentage of older small households. The public sector not only contains a higher proportion of large families but these families are, on average, larger than the large families in either of the two other tenure groups.

7.34. Tables 7.32 and 7.33 deal with the occupation and net weekly income of the head of the household. Of course, not all heads of households have a job; they may be retired, unemployed or, possibly, women who have never been in paid employment.<sup>(2)</sup> Here, the retired and unemployed have been classified to their former occupations but persons who cannot be said to have had a job have been placed in the residual category. Households with heads engaged in skilled manual occupations comprise

<sup>(1)</sup> The household classification is described in the Appendix. See para. 5.

<sup>(2)</sup> See Appendix para. 9 for the definition of the head of the household and para. 11 for a description of the occupational classification and a distribution of heads of household by sex and employment status.

TABLE 7.31

Percentage distribution of households in each tenure group by age of housewife, household type and showing the average household size for households of each type in each tenure group

	Owner-occupiers	Private tenants	Public sector tenants	All households
<i>Age of housewife:</i>				
Under 25 . . . . .	10.5	10.8	3.8	5.9
25-44 . . . . .	39.1	38.6	44.5	42.2
45-59 . . . . .	24.6	20.7	24.3	23.9
60 or over . . . . .	28.9	30.0	27.4	27.9
All households . . . . .	100.0	100.0	100.0	100.0
<i>Household type:</i>				
Individuals under 60 . . . . .	3.4	2.8	4.1	3.6
Small adult households . . . . .	19.0	14.0	11.6	13.4
Small families . . . . .	24.0	26.4	18.5	20.6
Large families . . . . .	8.3	9.6	15.4	13.8
Larger adult households . . . . .	18.8	15.2	27.7	24.4
Older small households <sup>(1)</sup> . . . . .	26.6	31.6	22.6	24.5
Not known . . . . .	0.0	0.4	0.0	—
All types . . . . .	100.0	100.0	100.0	100.0
<i>Average number of persons per household of each type:</i>				
Individuals under 60—one person, by definition.				
Small adult households—two persons, by definition.				
Small families . . . . .	3.5	3.4	3.5	3.5
Large families . . . . .	5.3	5.8	5.9	5.6
Larger adult households . . . . .	3.8	3.6	3.7	3.7
Older small households . . . . .	1.5	1.5	1.7	1.7
All types . . . . .	2.8	2.8	3.3	3.1

<sup>(1)</sup> The percentage of older small households in the Survey Sample cannot be compared with the percentage of 1 and 2-person households containing persons of pensionable age given in the Census (*Census 1961, Scotland, op. cit.*, Vol. 4, Part I, Table 26), because the Survey classification is based on age 60 for both sexes, not pensionable age.

the largest group, 36 per cent of the combined sample; a further 29 per cent are employed in semi and unskilled manual work, and just over a fifth in what may be called white collar occupations (professional workers, employers and managers, and intermediate and junior non-manual workers). Naturally there are differences between the three tenure groups. A higher proportion of heads of households in the public sector are manual workers, nearly 75 per cent, and only 5 per cent in professional and higher managerial occupations. For owner-occupiers the situation is reversed with the highest percentage, 27 per cent, in professional and similar employment. But although proportionately fewer heads of owner-occupying households are engaged in manual occupations, they still form about a third of all owner-occupiers. Private tenants occupy an intermediate position with fewer white collar workers and more manual workers than owner-occupiers but more white collar workers and fewer manual workers than in the public sector.

7.35. Income data collected in surveys of this type is always of questionable value—the response rate is usually low and the information

given of doubtful accuracy. Consequently too much reliance should not be placed on the material presented in Tables 7.33 and 7.35. It has already been pointed out that not all heads of households are in paid work and therefore Table 7.33 is in two parts. The first, part (a), includes all households whether the head was working or not, the second, part (b), includes only households with earner heads.

Further, owner-occupiers have been divided into two groups, those still buying their houses and those owning them outright. About a fifth of all heads of households have a net income of £5 per week or less; even for earner heads alone nearly 9 per cent fall into this category. The median net weekly income for all heads of households is 11 guineas and is only £13 4s. for earner heads. In keeping with their superior occupational status, owner-occupiers have the highest median income. But while 13 per cent of all owner-occupiers have a net income of £5 per week, or less, none of those buying their house comes into this category. Heads of households in the public sector have the lowest median income (see Table 7.33) whether all heads or only earner heads are under consideration, but the range of



*Percentage distribution of households in each tenure group by the occupation of the head of the household*

Occupational group	Over-occupies	Private tenants	Public sector tenants	All
Professional workers, employees and managers . . . . .	25.6	11.2	5.1	10.1
Intermediate and junior non-manual workers . . . . .	21.7	12.7	7.9	11.2
Personal service workers and workers on own account (other than professional) . . . . .	7.1	4.0	1.7	3.0
Foremen and skilled manual workers . . . . .	21.5	38.2	40.1	36.2
Semi- and unskilled manual workers . . . . .	12.9	22.8	34.2	29.6
Farmers and agricultural workers . . . . .	0.7	1.4	0.3	0.3
Not stated and indefinite <sup>(1)</sup> . . . . .	9.3	10.0	10.6	10.3
All	100.0	100.0	100.0	100.0
	19.7	12.1	88.2	100.0

<sup>(1)</sup> The large majority of heads of households in this category are women who have not had an occupation (see Appendix, para. 11).

variation is less than for tenants in the private sector.

But the head of the household is not necessarily the only person in the household with a job and need not in fact be its chief economic supporter. Table 7.34 gives the percentage distribution of households in each tenure group by the number of members with paid jobs. From this it is apparent that the low incomes of the heads of public sector households are offset by having more members of the household at work. This is consistent with the relatively higher proportion of larger adult households in the public sector. 18 per cent of households in the public sector sample had no full time earner and 8 per cent had three or more. The comparable percentages for private sector tenants are 24 per cent and 5 per cent.

The effect of this lower ratio of earners to all members in private sector households is to give private sector households the lowest median net weekly household income (see Table 7.35).

7.36. The discussion of the size distribution of ratable units commented on the large proportion of units with three rooms or less but, as Table 7.30 shows, over 60 per cent of households have three, or fewer, members. Thus, since very few ratable units are shared, a straight-forward comparison of persons in a household with the number of rooms in their accommodation would not be expected to reveal extensive overcrowding. Table 7.36 analyses the households in each tenure group by three measures of density of occupation—statutory overcrowding, the ratio of persons per room, and the number of bedrooms in excess of, or below, the bedroom standard. <sup>(1)</sup>

Only 1 per cent of all the households in the combined sample were overcrowded within the terms of the Housing Acts, most of them private sector tenants. These overcrowded households are larger and have more children aged under sixteen than households which are not overcrowded.

	Average number of persons	Average number of children aged under 16
Households with the permitted number of persons in the dwelling or less . . . . .	3.1	0.8
Households with more than the permitted number of persons . . . . .	5.7	3.0

Although the percentage of overcrowded households is low, so is the standard itself and 1 per cent represents about 380 households. <sup>(2)</sup> If households living at a density of more than 1½ persons per room are said to be overcrowded, then the percentage of overcrowded households in the sample is increased to just over 4 per cent with a further 9½ per cent living at a density of over 1 and up to 1½ persons per room. However at the other extreme 19 per cent of all households have more than two rooms per person. There are striking differences between the tenure groups,

<sup>(1)</sup> See para. 10 of the Appendix to this Chapter for definitions and methods of calculation of these measures.

<sup>(2)</sup> After allowing for unoccupied ratable units the total number of households in the Area at the time of the Housing Survey is estimated at 57.9 thousand.

TABLE 7.33

Percentage distribution of households in each tenure group by the net weekly income of the head of the household, separately for all heads of households and for owner heads

	Owner-occupiers			Private tenants	Public sector tenants	All
	Owning outright	Buying	All			
(a) All heads						
All heads . . . . .	286	124	410	251	292	(Weighted average)
Number for whom data available . . . . .	209	104	313	226	240	(Weighted average)
	(100-0)	(100-0)	(100-0)	(100-0)	(100-0)	(100-0)
Net weekly income						
£	%	%	%	%	%	%
Up to 5 . . . . .	19.6	0.0	13.1	21.7	19.6	18.7
Over 5 to 7 10s. . . . .	13.4	1.0	9.3	9.7	8.8	9.0
7 10s. to 10 . . . . .	7.2	1.9	5.4	9.3	11.7	10.2
10 to 12 10s. . . . .	11.5	11.5	11.5	14.2	22.9	19.7
12 10s. to 15 . . . . .	16.8	19.2	17.3	23.4	20.0	20.0
15 to 20 . . . . .	17.7	27.9	21.1	13.3	15.7	15.0
20 to 25 . . . . .	4.3	10.3	8.9	6.2	2.1	3.9
Over 25 . . . . .	10.0	20.2	13.4	2.2	1.2	3.6
Median income . . . . .	£12 3s.	£17 18s.	£14 1s.	£11 12s.	£11 2s.	£11 12s.
Quartile range . . . . .	£ 5 10s.	£ 4 18s.	£5 7s.	£ 4 8s.	£ 5 13s.	£ 5 13s.
(b) Owner heads <sup>(1)</sup>						
All owner heads . . . . .	182	118	300	183	221	(Weighted average)
Number for whom data available . . . . .	123	98	221	167	174	(Weighted average)
	(100-0)	(100-0)	(100-0)	(100-0)	(100-0)	(100-0)
Net weekly income						
£	%	%	%	%	%	%
Up to 5 . . . . .	1.6	0	0.9	4.8	2.9	2.8
Over 5 to 7 10s. . . . .	2.4	0	1.4	6.6	3.4	3.5
7 10s. to 10 . . . . .	4.9	2.0	3.6	9.6	12.1	10.2
10 to 12 10s. . . . .	17.9	10.2	14.5	18.0	30.5	25.9
12 10s. to 15 . . . . .	24.4	19.4	22.2	32.3	27.6	27.3
15 to 20 . . . . .	26.0	29.6	27.6	18.0	19.0	20.4
20 to 25 . . . . .	7.3	18.6	12.2	7.8	2.9	5.2
Over 25 . . . . .	15.4	20.4	17.6	9.0	1.7	4.7
Median income . . . . .	£14 17s.	£18 2s.	£16 7s.	£13 7s.	£12 12s.	£13 4s.
Quartile range . . . . .	£ 3 13s.	£ 4 16s.	£ 4 10s.	£ 2 15s.	£ 2 5s.	£ 2 15s.

<sup>(1)</sup> With a paid job of not less than 30 hours a week, and the unemployed (see Appendix, para. 9).

particularly between owner-occupiers and private sector tenants. 27 per cent of owner-occupying households live at a ratio of 2 rooms per person and only 2½ per cent at a density of 2 persons per room. The comparable percentages for private sector tenants are 10 per cent and 9 per cent. It is only among private sector tenants that there are more overcrowded (more than 1.5 persons per room) than under-occupying (less than 0.5 persons per room) households.

However, the number of rooms a household needs depends not only on the number of people but their age, sex and relationship to each other, factors which are taken into consideration by the bedroom standard. A description of this standard is given in the Appendix but the basic principle is that the number of bedrooms which a household would require to have adequate sleeping accommodation is calculated and this number compared with the number of bedrooms it ac-

tually has. By this measure the percentage of households in the combined sample with fewer rooms than they need is increased to 18 per cent although, again, with the exception of private sector tenants, there are still more households with accommodation above than below the standard (which, incidentally, does not allow for spare rooms for guests).

A household's views on the amount of space it needs depend on subjective as well as objective considerations. Housewives were asked whether they thought their houses were too large or too small and in Table 7.37 their replies are analysed by bedroom standard. The majority of public sector housewives thought their accommodation to be about the right size, even those above and below the standard. Of those at the standard, more considered their houses to be too small than too large. This last observation is also true of private sector housewives but here fewer of

TABLE 7.34

Percentage distribution of households in each tenure group by the number of persons in full-time employment, by the number with any job and by the ratio of earners to all members of the household

	Owner-occupiers	Private tenants	Public sector tenants	All households
<i>Number in household<sup>(1)</sup> with a full time job</i>				
0 . . . . .	21.2	24.3	17.5	19.0
1 . . . . .	35.6	35.0	32.4	33.3
2 . . . . .	19.2	15.1	20.9	19.9
3 or more . . . . .	5.9	5.2	8.2	7.0
Not known . . . . .	0.0	0.4	1.0	0.7
All households . . . . .	100.0	100.0	100.0	100.0
<i>Average number of full time earners per household</i>	1.1	1.0	1.2	1.2
<i>Number in household<sup>(2)</sup> with any job</i>				
0 . . . . .	21.0	22.7	16.4	19.1
1 . . . . .	31.2	32.6	46.6	46.2
2 . . . . .	23.4	19.7	25.8	24.2
3 or more . . . . .	4.4	5.6	11.5	9.3
Not known . . . . .	0.0	0.4	0.5	0.5
All households . . . . .	100.0	100.0	100.0	100.0
<i>Average number of full and part-time earners per household</i>	1.4	1.1	1.3	1.3
<i>Ratio of full time earners<sup>(3)</sup> to all members of the household</i>				
Less than 0.5 . . . . .	40.2	44.2	40.1	40.6
0.5 or more . . . . .	59.8	55.4	59.2	59.9
Not known . . . . .	0.0	0.4	0.7	0.5
All households . . . . .	100.0	100.0	100.0	100.0

<sup>(1)</sup> Paid job of 30 or more hours per week

<sup>(2)</sup> Paid job of at least 10 hours per week

<sup>(3)</sup> The number of members of the household with a paid job of 30 or more hours per week expressed as a proportion of the total number of persons of all ages in the household. Persons with unearned incomes only do not count as earners

TABLE 7.35

Percentage distribution of households in each tenure group by the net weekly income of the household

	Owner-occupiers	Private tenants	Public sector tenants	All
All households . . . . .	410	251	292	(Weighted average)
Households for which data available . . . . .	305	218	222	(Weighted average)
	(100.0)	(100.0)	(100.0)	(100.0)
<i>Net weekly income<sup>(1)</sup> of household</i>	%	%	%	%
£				
Up to 5 . . . . .	8.8	15.1	9.0	9.7
Over 5 to 10 . . . . .	11.2	15.6	12.6	12.7
10 to 15 . . . . .	21.4	28.4	28.4	27.1
15 to 20 . . . . .	18.6	14.7	21.6	20.1
20 to 25 . . . . .	14.5	14.7	16.7	16.0
25 to 30 . . . . .	6.8	3.2	5.0	5.0
30 to 40 . . . . .	5.0	4.6	3.2	3.7
40 or more . . . . .	1.0	1.4	2.2	1.9
Over 25 but upper limit unknown . . . . .	15.5	2.3	1.3	3.6
Median . . . . .	£17 8s.	£15 8s.	£15 0s.	£15 2s.

<sup>(1)</sup> Net weekly income of all earners in household working more than 10 hours per week and persons receiving social security benefits or pensions

TABLE 7.36

Percentage distribution of households in each tenure group by statutory overcrowding, ratio of persons per room and bedroom standard

	Owner-occupiers	Private tenants	Public sector tenants	All
	%	%	%	%
<i>Statutory overcrowding</i>				
Permitted number of persons	98.6	95.6	99.6	99.0
More than the permitted number of persons . . .	1.2	4.4	0.4	1.0
	100.0	100.0	100.0	100.0
<i>Ratio of persons per room</i>				
Less than 0.5 (More than 2 rooms per person) . . . . .	26.8	9.6	18.2	18.8
0.5-0.65 (Over 1½ up to 2 rooms per person) . . . . .	21.7	19.5	24.0	23.0
0.66-0.99 (Over 1 up to 1½ rooms per person) . . . . .	26.8	19.9	26.7	25.9
1 person per room . . . . .	15.7	24.3	19.2	18.7
Over 1 up to 1½ persons per room . . . . .	7.6	15.1	8.9	9.4
Over 1½ up to 2 persons per room . . . . .	1.0	2.8	0.3	0.8
Over 2 persons per room . . . . .	2.4	8.8	2.7	3.4
	100.0	100.0	100.0	100.0
<i>Bedroom Standard</i>				
Above standard:				
2 rooms or more . . . . .	11.4	3.2	5.8	6.6
1 room . . . . .	51.6	14.8	30.1	28.6
Equal to standard . . . . .	42.3	51.2	47.3	46.6
Below standard:				
1 room . . . . .	13.4	26.4	14.4	15.6
2 rooms or more . . . . .	1.2	4.4	2.4	2.4
	100.0	100.0	100.0	100.0
All households . . . . .	19.7	12.1	68.2	100.0

TABLE 7.37

Percentage distribution of households in each bedroom standard category by the housewife's attitude to the size of the accommodation, separately for the public and the private sectors

	Bedroom standard					All households
	Below standard		Equal to standard	Above standard		
	2 or more bedrooms	1 bedroom		1 bedroom	2 or more bedrooms	
(a) <i>Public sector</i>						
Accommodation considered:						
Too small . . . .	0.0	23.8	6.5	0.0	0.0	6.5
About right . . .	100.0	76.2	92.0	79.5	76.5	85.5
Too large . . . .	0.0	0.0	1.5	19.3	23.5	7.9
Not known . . . .	0.0	0.0	0.0	1.1	0.0	0.3
All households . .	100.0	100.0	100.0	100.0	100.0	100.0
(b) <i>Private sector</i>						
Accommodation considered:						
Too small . . . .	62.5	62.8	17.3	1.8	5.6	21.6
About right . . .	31.3	36.1	79.1	83.2	61.6	69.6
Too large . . . .	6.2	0.0	3.3	13.8	24.5	8.0
Not known . . . .	0.0	1.6	0.3	1.2	0.0	0.8
All households . .	100.0	100.0	100.0	100.0	100.0	100.0

those at the standard considered their accommodation to be about right and a higher percentage than in the public sector thought it too small. It is perhaps indicative of future expectations that over 60 per cent of private sector housewives with below the standard number of bedrooms recognised that their houses were too small, while the group with the highest percentage considering their accommodation to be about the right size were those with one bedroom more than the standard.

7.37. During the earlier discussion of rental units it became clear that a disproportionately high percentage of units lacking in amenity were in the privately rented sector. This fact is demonstrated in another way by Table 7.38 which shows the percentage of households in each tenure group with exclusive or shared use, or without, a W.C., fitted bath, wash basin, sink, a garden and garage. In the case of each amenity the percentage of households with exclusive use is lowest for private sector tenants. With the exception of garages, an amenity possessed by a higher proportion of owner-occupiers, the public sector contains the highest proportion of households with exclusive use of each item. An analysis of the characteristics and resources of households lacking amenities would be valuable but, unfortunately, is impossible within the time available. However from Table 7.39, which shows the availability of amenities to households in the private sector by household type, it can be seen that the most inadequately equipped households are those consisting of individuals aged under 60 living alone, followed by small adult households and small families. The most well provided for are large adult households.

7.38. It remains to consider how much households pay for their accommodation. Data was not collected on mortgage repayments by owner-occupiers<sup>(1)</sup> but it will be recalled (see para. 7.27) that 70 per cent of the owner-occupiers in the sample already owned their homes outright. Table 7.40 gives distributions of private and public sector tenant households by their annual net rent and by the ratio of the annual net rent to the gross value of their accommodation. In keeping with its higher standard and greater homogeneity, public sector rents are higher and less dispersed than those paid by private sector tenants. The median rent of the public sector sample is £43 11s., of the private sector £17 19s. A third of private sector tenants pay less than £13 per annum while fewer than 2 per cent of public sector households have rents as low as this; the latter are presumably the occupants of houses acquired for demolition. A separate analysis of controlled and uncontrolled tenancies in the private sector proved impossible because 56 per cent of the tenants in the sample did not know whether their rents were controlled or not.

However, the significance of the rent paid depends on what is received in exchange, and therefore in the second part of Table 7.40 an attempt has been made to introduce a degree of standardization by expressing rent as a ratio of the assessed gross value<sup>(2)</sup> of the accommodation. Thus, for example, a ratio of 1.0 indicates a

TABLE 7.38

*Percentage distribution of households in each tenure group by the availability of the following amenities: W.C. in or attached to the dwelling, fitted bath, fitted washbasin, fitted sink, garden and garage*

	Owner-occupiers	Private tenants	Public sector tenants	All
<b>W.C. in or attached to dwelling</b>				
Household has:				
Exclusive use	84.7	39.5	96.9	90.0
Shared use	15.1	59.2	3.1	9.9
Without	0.0	0.0	0.0	0.0
Not known	0.2	1.2	0.0	0.1
<b>Fitted bath</b>				
Household has:				
Exclusive use	73.7	38.0	96.9	85.2
Shared use	0.2	0.4	0.7	0.5
Without	26.0	60.8	3.4	14.1
Not known	0.0	0.8	0.0	0.1
<b>Fitted washbasin</b>				
Household has:				
Exclusive use	71.5	33.6	89.0	78.2
Shared use	0.2	0.4	0.7	0.6
Without	28.0	64.8	11.3	21.0
Not known	0.2	1.2	0.0	0.2
<b>Fitted sink</b>				
Household has:				
Exclusive use	90.5	98.0	99.3	99.2
Shared use	0.2	0.0	0.7	0.6
Without	0.2	0.4	0.0	0.1
Not known	0.8	0.8	0.0	0.1
<b>Garden</b>				
Household has:				
Exclusive use	73.5	42.0	82.9	70.1
Shared use	2.9	4.4	4.4	4.2
Without	21.9	52.0	12.0	18.3
Not known	1.7	1.2	0.7	0.9
<b>Garage</b>				
Household has a garage:				
Attached to the dwelling	34.8	8.8	12.0	16.1
Elsewhere	0.0	0.6	8.6	8.6
No garage	56.0	81.2	78.7	74.5
Not known	1.2	0.4	0.7	0.8

rent equal to the gross value, and of 0.5 a rent equal to half the gross value. In recent years local authorities have been urged to regard gross value as a guide to what would constitute a reasonable rent.<sup>(3)</sup> The marked discontinuity in the public sector distribution at a ratio of 0.8 indicates that this advice has been followed, at least in part. The median ratio is 1.02, compared with 0.71 for the private sector, and 77 per cent of all households fall within the range 0.81 to 1.2. Irregularity is the most marked feature of the private sector distribution—a result of fifty years of rent control and possibly a reflection of differ-

<sup>(1)</sup> But see Appendix para. 8 for some material on recent house prices in the Area.

<sup>(2)</sup> A notional rent at which the property might reasonably be expected to be let if the tenant paid the rates and the landlord the cost of repairs, insurance, etc.

<sup>(3)</sup> See R. D. Greenwood, *op. cit.*, p. 76.

TABLE 7.39

*Percentage distribution of households of each type by the availability of the following amenities: W.C. in or attached to the dwelling, fixed bath, fitted washbasin, garden. Private sector only*

	Household type						All types
	Individuals under 60	Small adult	Small families	Large families	Larger adult households	Older small households	
<b>W.C. in or attached to dwelling</b>							
Household has:							
Exclusive use . . . . .	50.0	64.0	68.7	86.2	91.2	79.1	75.3
Shared use . . . . .	50.0	36.0	29.3	13.8	8.8	21.9	24.2
Without . . . . .	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not known . . . . .	0.0	0.0	1.8	0.0	0.0	0.0	0.5
<b>Fixed bath</b>							
Household has:							
Exclusive use . . . . .	27.8	49.1	53.0	74.1	89.7	69.4	60.2
Shared use . . . . .	0.0	0.9	0.0	0.0	0.0	0.5	0.3
Without . . . . .	72.7	49.1	66.4	25.9	19.3	39.0	39.2
Not known . . . . .	0.0	0.9	0.6	0.0	0.0	0.0	0.3
<b>Fitted washbasin</b>							
Household has:							
Exclusive use . . . . .	31.4	66.3	51.2	72.4	76.3	55.6	57.2
Shared use . . . . .	0.0	0.9	0.0	0.0	0.0	0.5	0.3
Without . . . . .	63.6	50.9	48.2	27.6	23.7	43.9	41.9
Not known . . . . .	4.6	1.7	0.6	0.0	0.0	0.0	0.5
<b>Garden</b>							
Household has:							
Exclusive use . . . . .	45.5	49.1	56.0	74.2	81.6	59.9	61.6
Shared use . . . . .	0.0	7.0	3.6	3.4	1.8	5.2	3.6
Without . . . . .	54.5	41.2	39.2	22.4	14.9	35.3	35.3
Not known . . . . .	0.0	2.6	1.2	0.0	1.7	1.6	1.5

ences in the division of responsibility for repairs and decorations between landlord and tenant.

More order can be discerned in Table 7.41 which gives median rents for private sector dwellings with or without a W.C., a fitted bath, and a hot water supply. The median rent paid by households with exclusive use of all three amenities is £27 15s.; those without exclusive use of all three pay £14 12s.

7.39. Broadly speaking, a household living in an inadequate dwelling may either accept the situation, improve the house, or move out. The replies made by survey housewives when asked if they were satisfied with their accommodation suggest that the first response is the most common. These replies are analysed by tenure group in Table 7.42.

As might be expected, the proportion of 'very satisfied' housewives is comparatively low among households renting from private landlords, but it is rather surprising to learn that three-quarters of them claim to be at least fairly satisfied with their accommodation, especially when it is remembered that 39 per cent of private sector tenant households lack exclusive use of a W.C. in or attached to the dwelling and 60 per cent are without exclusive use of a fixed bath. Doubtless low rents play some part in reconciling housewives to poor conditions but the fact that so few should be actively dissatisfied suggests that many of them are so accustomed to poor houses

that they expect nothing better. This view is supported by the apathy towards improvement grants. Since 1949 local authorities have been able to give financial assistance towards house improvement by both private landlords and owner-occupiers and, since 1959, 'standard grants' have been available to private owners as of right for the installation of as many of the five standard amenities<sup>(1)</sup> as a house lacked. To be eligible for a grant a house must have a useful future life, when improved, of at least fifteen years and there are certain conditions concerning the continuing interest in the property of the applicant for the grant and the size of any consequent rent increases.

However when private sector tenants lacking exclusive use of at least one of the five standard amenities<sup>(2)</sup> were asked if they would pay more rent for their existing houses if the amenities they lacked were installed only 32 per cent said they would, 48 per cent refused to do so and the remaining 20 per cent did not know. Refusal does not necessarily mean that a tenant would not pay a higher rent for a better house. Some of the refusals may have been dictated by other deficiencies in the dwelling or its surroundings which caused the tenant to feel that if he is to

(1) Fitted bath or shower, wash-hand basin, hot water supply, W.C. in or attached to the dwelling, and a ventilated food store.

(2) 74 per cent of all private sector tenant households.

TABLE 7.40

Percentage distribution of private and public sector tenants by annual net rent and the ratio of annual net rent to gross value

	Private tenants	Public sector tenants	All tenants
(a) Annual net rent <sup>(1)</sup>			
All households	251	292	
Number for which data available	224 (100.0)	277 (100.0)	Weighted average (100.0)
Rent (£)	%	%	%
0 or negative	0.9	0.7	1.0
Less than 13	25.4	1.1	4.6
13 but less than 26	41.1	7.9	12.7
26 but less than 39	30.0	10.6	18.8
39 but less than 52	9.6	56.0	49.4
52 but less than 65	2.7	12.5	10.9
65 but less than 78	1.6	0.4	0.6
78 or more	2.2	1.1	1.1
Median rent	£17 15s.	£42 11s.	£42 3s.
Quartile range	£6 12s.	£6 13s.	£9 7s.

(1) Gross annual rent less any amount paid for rates or services provided by the landlord

(b) Annual net rent as a ratio of gross value <sup>(1)</sup>			
Households for which ratios available	208 (100.0)	275 (100.0)	Weighted average (100.0)
Ratio of:	%	%	%
0.00-0.25	2.9	0.0	0.4
0.26-0.50	16.0	2.2	6.0
0.51-0.60	15.1	1.1	2.7
0.61-0.70	17.5	1.4	3.9
0.71-0.80	11.6	5.6	6.6
0.81-0.90	8.3	22.9	20.9
0.91-1.00	10.7	14.9	14.3
1.01-1.10	5.8	19.6	17.8
1.11-1.20	5.4	19.6	17.5
1.21-1.30	2.9	6.9	6.4
1.31-1.40	2.4	3.2	2.2
1.41-1.50	0.5	0.4	0.4
1.51 or more	4.9	2.3	2.9
Median ratio	0.71	1.02	0.69
Quartile range	0.20	0.16	0.15

(1) Annual net rent divided by gross value

TABLE 7.41

Median rent paid by private sector tenants with exclusive use of specified combinations of the following amenities: W.C. in or attached to the dwelling, fixed bath, and hot water at three points

	Number of households	Number for which rent data available	Median rent £ s.
Exclusive use of all three amenities	84	71	27 15
With bath and W.C. but without hot water	12	12	19 10
With W.C. but without bath, with and without hot water	49	45	15 9
Without exclusive use of all three	104	94	14 12
Not known	2	0	0 0
All	251	224	17 19

TABLE 7.42

Percentage distribution of households in each sector by the attitude of the housewife to the accommodation

	Owner-occupiers	Private tenants	Public sector tenants
Very satisfied	59.9	29.3	81.7
Fairly satisfied	29.7	44.2	29.1
No feelings either way	2.4	3.4	1.4
Rather dissatisfied	5.1	13.7	4.1
Completely dissatisfied	2.2	3.4	2.7
Not known	0.7	0.8	1.0
All	100.0	100.0	100.0

TABLE 7.43

*Willingness of private sector tenants of fit ratable units with an estimated future life of 15 years or more to pay a higher rent for the installation of the amenities they lack, by the amenities lacking*

(numbers of households)

		Willing	Unwilling	Don't know	All
Without:					
Fitted bath, washbasin, hot water supply and inside W.C. . . . .		5	5	5	15
Fitted bath, washbasin, hot water supply . . . .		5	2	0	5
Washbasin and hot water supply . . . . .		1	4	1	6
All		9	11	6	25
No.					
%		35	42	23	100

pay more rent than he wants another house altogether.<sup>(1)</sup>

Table 7.43 is limited to households living in fit ratable units with an estimated future life of 15 years or longer and shows willingness to pay a higher rent by the amenities lacking. But even with the exclusion of the worst ratable units, the response to the idea of a higher rent for an improved house remains equally unfavourable.

Owner-occupiers of houses lacking any one of the five amenities (56 per cent of all owner-occupiers) were asked if they had heard of improvement grants; if they had, whether or not they proposed to apply for one; and if not, the reason why. Only 41 per cent had heard of the grants and out of these 14 per cent were proposing to apply or had already done so. The most common reasons given for not applying were:

That the house was unsuitable	33%
That the household was content	30%
That the household intended to move	14%
Personal reasons	9%

Just over 12 per cent of all households in the combined Survey sample contained someone

trying to move—in the majority of cases the whole household (see Table 7.44)—and, as the following percentages show, a more than proportionate number of these households were private sector tenants.

	Whole household, or part with housewife, trying to move	All households
	%	%
Owner-occupiers	15.6	19.7
Private sector tenants	29.4	12.1
Public sector tenants	55.0	68.2
	100.0	100.0

Nearly a quarter of private sector tenant households were trying to move compared with only 7 per cent of owner-occupiers and the same percentage of public sector tenants (see Table 7.44). Since private sector tenants also have the

<sup>(1)</sup> It is unfortunate that house improvement brings an increase in rates as well as in rent.

TABLE 7.44

*Percentage distribution of households in each tenure group by whether or not the household, as a whole or in part, was trying to move*

	Owner-occupiers	Private tenants	Public sector tenants	All
<i>Households with no-one trying to move</i>	90.5	72.4	89.4	87.6
<i>Households with someone trying to move</i>	9.5	26.8	10.6	12.3
Whole household	7.1	25.2	7.2	9.3
Part of household with housewife	0.7	0.0	1.0	0.8
Part of household without housewife	1.7	1.6	2.4	2.2
Not known	0.0	0.8	0.0	0.1
<b>All households</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>



TABLE 7.45

*Percentage distribution of households trying to move as a whole or a part only, but including the housewife, by the main reason given for trying to move, separately for each sector*

	Owner-occupiers	Private tenants	All private sector	Public sector tenants	All
<i>Reasons for trying to move</i>					
House condemned	0.0	6.5	4.2	0.0	1.9
House required by owner	0.0	1.6	1.1	0.0	0.5
House too expensive	0.0	0.0	0.0	0.0	0.0
House too large	6.4	0.0	2.1	13.5	7.8
House too small	69.7	45.1	53.7	25.0	57.9
House in poor repair or in a poor neighbourhood	6.1	19.4	14.7	0.0	6.6
Household wants unfurnished (not furnished) accommodation	0.0	3.2	2.1	0.0	1.0
Household wants to buy (not rent)	0.0	0.0	0.0	0.0	0.0
Because of marriage	0.0	0.0	0.0	0.0	0.0
Because of job	3.0	3.2	3.2	0.0	1.4
For other personal reasons	0.0	4.8	3.2	4.2	3.7
Other reasons	12.1	11.3	11.6	54.1	35.0
No reason and not known	3.0	4.8	4.2	4.2	4.2
All reasons	100.0	100.0	100.0	100.0	100.0

highest percentage of households lacking amenities, it seems reasonable to conclude that absence of amenity played some part in the decision to move although it is not possible to demonstrate this directly from Survey material.

Reasons for trying to move were pre-coded and Table 7.45 shows the percentage of households giving each reason for trying to move, by tenure group. For private sector households, the most common reason was that their present accommodation was too small; this was the case for nearly 70 per cent of owner-occupiers and 45 per cent of private sector tenants. Just under a fifth of private tenants trying to move gave the poor condition of the house or neighbourhood as the reason for doing so. Public sector tenants present a special case because most of the usual reasons for wanting to move appear not to apply to them (see Table 7.43) and this allows scope for household idiosyncrasies. In fact the reasons given by more than half the households were classified to the residual category.

Whether households trying to move wish to rent or buy their accommodation has important policy implications. As can be seen from Table 7.46, most of sample households trying to move were looking for rented accommodation. Even among households already owning their own homes, only 21 per cent wanted to buy another house with a further 12 per cent willing to rent or buy.<sup>(1)</sup> Only 5 per cent of all households trying to move—in absolute terms, less than 200 households (see Table 7.46)—wanted to buy a house. By treating all households willing either to rent or buy and half the 'don't knows' as possible house purchasers, this percentage can be increased to a maximum of 16.3 per cent, or 630 households. However, if it is assumed that the distribution of new housebuilding between private sector houses for sale and public sector houses to let should be more or less the same as

the distribution of households trying to move between those wishing to buy and those wishing to rent then, on the evidence of this Survey, the current expectations of the present population of the Survey Area are plainly inconsistent with the assumption made in the White Paper 'The Scottish Housing Programme, 1965 to 1970'<sup>(2)</sup> that between 20 and 25 per cent of new housing output should be of homes for sale.

7.40. A future housebuilding programme for the Survey Area must take into consideration needs arising from the following sources:

- (i) any current absolute housing shortage,
- (ii) the number of existing houses requiring replacement,
- (iii) future household formation by the present population of the Area,
- (iv) the needs of the proposed immigrant population.

7.41. On the crudest definition an absolute housing shortage can be said to exist if a separate self-contained dwelling is not available for every household which wants one. As less than 0.5% of the ratable units in the Housing Survey sample were occupied by more than one household it is tempting to conclude that a shortage in this sense does not exist. But this approach is misleading because it considers only the needs of established households and ignores the possibility that these households may contain persons who would prefer to live on their own if separate accommodation could be found. A guide to the extent of such concealed sharing is given by the

<sup>(1)</sup> 77 per cent of private sector households looking for rented accommodation had their names on the local authority housing list.

<sup>(2)</sup> Scottish Development Department, *The Scottish Housing Programme, 1965 to 1970*, Cmd. 2837, Edinburgh, H.M.S.O., 1965, para. 9.

TABLE 7.46

Percentage distribution of households trying to move (whole household and part only, but with the housewife) by whether they wish to rent or buy, separately for each sector, and also showing the estimated total number of households trying to move, to rent and to buy

	Present tenure					
	Owner-occupiers	Private tenants	All private sector	Public sector tenants	All forms	
	%	%	%	%	%	thousands
Households wishing to rent . . . . .	60.6	82.2	74.7	87.5	81.8	3.13
Households wishing to buy . . . . .	21.2	6.5	11.6	0.0	5.2	0.20
Households wishing either to rent or buy . . . . .	12.1	9.7	10.5	8.3	9.3	0.36
Not known . . . . .	6.1	1.6	3.2	4.2	3.7	0.14
All . . . . .	100.0	100.0	100.0	100.0	100.0	3.83

number of households in the Survey sample in which part only of the household was trying to move; 3% of the households in the sample contained at least one group of this kind (see Table 7.44). Applied to all households in the Survey Area this percentage gives an estimated 1.1 thousand possible extra households. Nevertheless it is not proposed that additional houses should be built specifically for these potential households for two reasons. Firstly, some of them may be trying to move away from the Area altogether, and secondly, others will be included in the estimated increase on the number of households up to 1970 and provided for under that heading.

Neither is it proposed that additional houses should be built for the relief of overcrowding. There are in any case more under-occupied than overcrowded ratable units and such statutory overcrowding as exists appears to be associated with the special problems of large families.

7.42. The real problems of the Area arise more from the poor quality of the older portion of the existing stock than from an absolute shortage of dwellings. Table 7.47 shows the estimated number of ratable units which it would be desirable to replace over the next twenty years. These estimates, necessarily rather rough, assume that if a ratable unit with three rooms or less, (including the kitchen) was built before the First World War then, although it may be technically 'fit' it is highly probable that the standard of amenity and design will be inadequate for life in the second half of the twentieth century and further, that the small size of the dwelling will preclude modernization. This generalization will not apply in all cases and therefore the total of 6.11 thousand ratable units in this category (see Table 7.47, part A) represents a maximum replacement estimate. In the case of ratable units with four or more rooms (including the kitchen) the proportion built to pre-1914 standards is smaller and thus the scope for divergence between physical and

social fitness correspondingly reduced. Therefore, for these units the classification by fitness and expected future life has been accepted as a guide to the need for replacement. Here, however, in view of the limitations of the concept of fitness the figures given in part B of Table 7.47 should be regarded as minima.

TABLE 7.47

Estimated number of ratable units to be replaced

A. Older ratable units with three rooms <sup>(1)</sup> or less		(thousands)		
		With 1 or 2 rooms	With 3 rooms	
Built before 1901	.	2.72	1.97	4.69
Built 1901-1918	.	0.85	0.57	1.42
		3.57	2.54	6.11

B. Ratable units of all ages with four or more rooms <sup>(1)</sup>		With 4 rooms	With 5 rooms	With 6 or more rooms	All with 4 or more rooms
Unfit	.	0.08	0.09	0.02	0.19
Fit with an estimated future life of less than 5 years	.	0.29	0.19	0.02	0.50
with an estimated future life of 5 but less than 15 years	.	0.53	0.43	0.34	1.29

<sup>(1)</sup> Including all kitchens

Note: Because of the absence of a simultaneous classification of ratable units by age, fitness and number of rooms this table does not include unfit and short life units with one, two, or three rooms (including all kitchens) built after 1918. However the number of such units must be small since it is estimated that only 300 1 and 2 roomed units were built after 1918 and of the estimated 2.1 thousand 3 roomed units built since that date, the majority, roughly 1.2 thousand, ante-date the Second World War

7.43. It now remains to consider the number of additional houses which will be needed as a result of the projected growth of the present population of the Area and its augmentation by planned immigration.

Given a projected population the number of households comprising that population at each projection date may be calculated quite simply by the application of headship rates—that is ratios of the number of persons in a specified category who are heads of households to the total number of persons in the category—to the projected population. The number of households may then be used to derive estimates of house requirements. This procedure was followed here using headship rates for the whole of Scotland derived from the 1961 Census and set out in Table 7.48 below. Table 7.49 shows the estimated number of households at each projection

TABLE 7.48

*Headship rates: Scotland 1961*

<i>Married men and women</i>			<i>per cent</i>
<i>aged</i>	15-44	.	46
	45-64	.	55
	65 and over	.	55
<i>Single, widowed or divorced</i>			
<i>Males</i>	<i>aged</i>	15-44	6
		45-64	39
		65 and over	50
<i>Women</i>	<i>aged</i>	15-44	8
		45-64	39
		65 and over	57

Derived from the 1961 Census and supplied to the Regional Survey by the Scottish Development Department

date for each of the three projections of the present population of the Area and for the proposed immigrant population.<sup>(1)</sup>

Since the same headship rates were used for all projections in all years changes in the number of households through time are the result of changes in the size and structure of the population. These same factors are also responsible for the differences between the three projections of the present population of the Area at the same date. However the most significant differences between the assumptions governing these projections are those affecting the number of births, consequently it is only in the long run that any divergence in the number of households begins to emerge. Even in the period 1981-1986 projection II gives an increase of 2.14 thousand households compared with 1.44 for projection IIA a difference of 0.7 thousand over 5 years or 140 a year.

Headship rates held constant at the levels of 1961 have the effect of projecting into the future rates of household formation appropriate to the social and economic conditions of 1961. But this is unlikely to be the source of any major error in estimating the total number of households because such changes in headship rates as are likely to occur, namely an increase in household formation by young unmarried people and by older widowed or divorced persons, are unlikely to be of any great numerical significance. How-

TABLE 7.49

*Estimated number of households: Existing population of the Survey Area and the proposed immigrant population at five yearly intervals, 1966-1986 and for the year 2001*

	<i>Existing population</i>			<i>Proposed Immigrant Population</i>
	<i>Projection II</i>	<i>Projection IIA</i>	<i>Projection IIB</i>	
1966	38.77	38.70	38.77	0.0
1971	40.79	40.43	40.86	0.0
1976	42.91	42.15	42.91	4.36
1981	44.97	43.84	44.90	9.48
1986	47.11	45.28	46.34	14.96
....	....	....	....	....
2001	56.93	54.08	55.35	22.39

*Note:* A detailed description of the population projections from which these estimated numbers of households were derived, will be found in Chapter 5. All three projections of the present population assume falling death rates and rising birth rates.

In addition Projection II assumes rising marriage rates and no further net emigration.

Projection IIA assumes constant marriage rates but no net emigration.

Projection IIB also assumes rising marriage rates but that net emigration will continue.

*Immigrant population:* The growth model for the immigrant population is based on assumptions equivalent to those for Projection II of the existing population, and on a constant flow of immigration beginning in 1971.

over, at the time of the 1961 Census headship rates in the Survey Area appear to have been below those of Scotland as a whole, therefore the use of Scottish rates does allow for some increase in the rate of household formation in the Area in the period up to 1971.

7.44 Estimated future numbers of households must now be converted into net additions to the housing stock. This has been done for the household estimates derived from projection II of the present population in Table 7.50 which shows (Row 1) how many extra houses would be needed in each quinquennium, given an estimated 58.79 thousand suitable units in mid-1965, if each household is to have a separate dwelling and if 1% of all dwellings are empty at any given time. Both assumptions are arbitrary. Some households, particularly those consisting of one person may prefer to share a dwelling but allowing for such households to have a separate one may be regarded as reflecting the failure to allow for any increase in the rate of household formation by

<sup>(1)</sup> These projections are described in detail in chapter 5. The projections were made by sex and age, the necessary breakdown by marital status being obtained by applying the appropriate marital status distribution, also described in chapter 5.

TABLE 7.50

House building requirements in the Survey Area in each quinquennium up to 1986

(thousands)

	Up to 1971	1971 -1976	1976 -1981	1981 -1986
<b>A. Additional houses</b>				
1. Needed for new household formation by the present population Projection II . . . . .	2.42	2.14	2.07	2.16
2. For the proposed immigrant population . . . . .	0	4.56	4.02	5.48
All additional houses . . . . .	2.42	6.70	6.09	7.64
<b>B. Replacement</b>				
3. Older rateable units with three rooms or less (including kitchen)	1.50	1.50	1.50	1.50
Rateable units with four rooms or more (including kitchen)				
4. Unfit . . . . .	0.19	0.0	0.0	0.0
Fit with a life of:				
5. less than 5 years . . . . .	0.50	0.0	0.0	0.0
6. 5-14 years . . . . .	0.0	0.64	0.65	0.0
7. 15-29 years . . . . .	0.0	0.0	0.0	2.54
All replacement houses . . . . .	2.19	2.14	2.15	4.04
All . . . . .	4.61	8.84	9.14	11.68

Notes: Rows 1 and 2 are derived from Table 7.49, Rows 3 to 7 from Table 7.47.

Row 1 allows a separate dwelling for each household and for a vacancy rate of 1 per cent of all dwellings. The base for the period up to 1971 is an estimate of 30.79 thousand rateable units in mid-1965, the figure given in the first column therefore spans 7 not 5 years.

Row 2 also gives each household a separate dwelling, but makes no allowance for vacant dwellings.

Row 3 The estimated 6.1 thousand rateable units in this category have been divided equally between the four periods. This implies a lower annual replacement rate in the period up to 1971 than in subsequent years.

Rows 4 and 5 assume that all unfit units and units with an estimated future life of less than 5 years will be replaced as quickly as possible—not later than 1971.

Row 6 assumes that an equal number of the units now estimated as having a future life of 5 years but less than 15 years will be replaced in each of the quinquennia 1971-1976 and 1976-1981.

Row 7 assumes that a third of the estimated 7.65 thousand rateable units of four or more rooms (including kitchens), and with a present expected life of 15 but less than 30 years, will be replaced in the period 1981-1986.

the single, widowed and divorced people who form the majority of one person households. A vacancy rate of 1% of all dwellings is low<sup>(1)</sup> but was selected on the grounds that as the Area was to be one of net immigration then the interval during which a house stood empty between tenants, or owner-occupier, would be comparatively short and the peak of dwellings standing empty at any given time correspondingly reduced.

Row 2, of Table 7.50 shows the additional houses which would be needed in each quinquennium to provide for the planned immigrant population, once again allowing a separate

dwelling for each household but making no allowance for empty houses.

7.45. While the house requirements given in Part A of Table 7.50 must be regarded as imperative in the sense that if they are not met then the proposed growth of population within the Area will not occur (given that the assumptions on which the calculations are based prove

<sup>(1)</sup> The rate for the whole of Scotland at the 1961 Census was 2.6%. General Register Office, Edinburgh, Census 1961, Scotland Vol. 4, Housing and Households Part I, Edinburgh, H.M.S.O., 1966 p. xxx.

correct) there is, unfortunately, no such sanction to ensure the completion of the programme of house replacement suggested in Part B of the table. The particular timing of replacement suggested is purely illustrative—showing what would be needed in each quinquennium if the replacement of older dwellings with three rooms or less was distributed evenly over the next 20 years and if all larger dwellings were replaced within the limits of their present expected future life, that is, for example, if all fit dwellings with

an expected future life of less than 5 years were replaced within 5 years. On this basis replacement requirements are of the order of 400 houses per annum until 1981 rising to 600 per annum thereafter. While this chapter is not concerned with the feasibility of the replacement programme it must be pointed out that the needs of the Area will have to be considered in relation to the no less pressing problems of other parts of Scotland and resources allocated in accordance with some national scheme of priorities.

## APPENDIX

### The Grangemouth-Falkirk Housing Survey

1. The Grangemouth-Falkirk Housing Survey closely resembles the concurrent Scottish Housing Survey which was then being organized from the University of Glasgow Department of Social and Economic Research by Mr. J. B. Cullingworth. Indeed, it was as a result of Mr. Cullingworth's initiative that the Grangemouth-Falkirk Housing Survey materialized. Every attempt was made to ensure maximum comparability between the results of the two Surveys but, although both use the same definitions and coding classifications, each was carried out by a different organization thus providing scope for the impairment of comparability by differences in interpretation between the two bodies.

Housing interviews for the Grangemouth-Falkirk Survey took place between the 18th of May and the 7th of July 1965, the majority in the May-June period.

2. The Survey was based on a stratified random sample of domestic rateable units,<sup>41</sup> drawn from the Valuation Rolls for the Area for the year 1964-1965. No adjustment was made for new building and for house decay and demolition after the Rolls had been made up.

The size of the sample was limited by the Survey budget to 1,655, a number expected to yield about 1,000 interviews. If all rateable units had been given an equal chance of selection then, given the 1961 census distribution of households by tenure, a sample of 1,655 rateable units would have contained roughly 655 publicly owned and only 400 privately owned units. This would have been unsatisfactory for two reasons. Firstly, for our purposes, publicly owned units constitute a single tenure group whereas to give analytically comparable tenure categories in the private sector the 400 privately owned units in the sample would need to be divided at least into owner-occupied and rented accommodation, with a possible further subdivision of tenants by form of tenure. Secondly, in contrast with the variety of privately owned units, the rateable units owned by local authorities are relatively homogeneous in age, size and type.

In this situation the reliability of the sample could be increased by stratification and the selection of proportionately more units from the heterogeneous private sector. From the information given in the Valuation Rolls it was possible to classify all units as being publicly or privately owned (but not to distinguish owner-occupied dwellings). Sampling fractions were then chosen which would yield about 300 rateable units in the public sector and the remainder from the private sector. The public sector includes all houses owned by the local authorities, the Scottish Special Housing Association and those rateable units for which the Secretary of State was given as the

TABLE 7.51

*Number of rateable units in the sample showing ineligible and ineffective units and households by the reasons for ineligibility and ineffectiveness*

	Private Sector	Public Sector
<i>Number of units in the sample</i>	700	311
<i>Ineligible units</i>		
Business premises	6	
Hotels and boarding houses	1	
Institutions	0	
Demolished	11	1
Derelict	4	1
All ineligible	22	2
All eligible units	738	309
<i>Eligible units for which full rateable unit data were not obtained:</i>		
Unoccupied	1	
No contact	6	
Refusal	9	2
Illness	2	
All	18	2
<i>Effective rateable units</i>	720	307
<i>Effective rateable units in which a household interview was not obtained:</i>		
Unoccupied	54	5
Temporarily away	18	2
Refusal	11	7
No contact	9	2
All	62	16
<i>Total number of rateable units in which a household interview was obtained</i>	658	291
<i>Total number of household interviews</i>	661	292

<sup>41</sup> Excluding those houses but including rural cottages and domestic rateable units shown as empty in the Valuation Rolls.

TABLE 7.52

*Percentage distribution of privately and publicly owned rateable units by rateable value, all domestic rateable units in the Survey Area and eligible units in the Housing Survey Sample*

Rateable Value (£)	Public Sector		Private Sector		Both	
	All	Sample	All	Sample	All	Combined Sample
1-10 . . .	1.8	1.9	9.8	9.9	4.5	4.6
11-20 . . .	3.3	2.3	31.0	31.0	12.6	11.8
21-30 . . .	41.2	42.7	16.8	16.3	33.0	34.2
31-40 . . .	43.7	42.7	14.2	13.3	33.8	33.0
41-50 . . .	9.8	9.7	13.7	13.1	11.1	10.8
51-100 . . .	0.2	0.7	14.2	15.4	4.9	5.5
101 or more . . .	—	0.0	0.3	0.4	0.1	0.1
All values . . .	100.0	100.0	100.0	100.0	100.0	100.0

proprietor. Rateable units owned by the National Coal Board were included in the private sector. Sampling fractions and the numbers of rateable units selected in each category are given below:

	(1) Total number of domestic rateable units (thousands)	(2) Sampling fraction	(3) Number of units selected
Public sector . . .	12.03	1:80	311
Private Sector . . .	12.54	1:16.5	760

Although rateable units which could be identified as ineligible from the Valuation Rolls were excluded from the population before the sample was drawn interviewers found 24 ineligible units among those selected. These are classified by the reason for ineligibility in Table 7.51. For a further 20 units, the only data is that available from external inspection.

Of the remaining 1,027 units (720 private/307 public) household interviews were conducted in 949 (638 private/291 public), four contained two households each, giving a total of 953 interviews (561 private, 291 public). Table 7.51 classifies the 62 private sector and 16 public sector units in which interviews were not obtained by the reasons for failure.

3. It is possible to check the reliability of this particular sample of eligible rateable units by comparing the percentage distribution by rateable value of the sample with that for the entire population. As Table 7.52 shows the match is quite good.

TABLE 7.53

*Percentage distribution of the rateable units in each rateable value category between the private and the public sectors, all domestic rateable units in the Survey Area and all eligible units in the Housing Survey Sample*

Rateable Value (£)	All domestic rateable units in the Survey Area		Eligible units in the Housing Survey Sample	
	Private	Public	Private	Public
1-10 . . .	73.5	26.5	71.5	28.5
11-20 . . .	82.6	17.4	87.1	12.9
21-30 . . .	17.0	83.0	16.2	83.8
31-40 . . .	14.0	86.0	13.3	86.7
41-50 . . .	41.4	58.6	40.0	60.0
51-100 . . .	96.8	3.2	92.2	7.8
101 or more . . .	96.7	3.3	100.0	0.0
All Values . . .	33.5	66.5	33.0	67.0

Table 7.53 compares the relative proportions of privately and publicly owned units in each rateable value category in the combined sample and in the population from which it was drawn. Thus 74% of all rateable units in the Survey Area with a rateable value of £10 or less were privately owned compared with 72% of eligible units of that assessment in the sample.

But interviews were not obtained in all eligible units and non-contacts and refusal could be a source of bias. The effects of non-response on the distribution of privately owned units by rateable value can be seen in Table 7.54. In comparison with the distribution

TABLE 7.54

*Percentage distribution of privately owned domestic rateable units by rateable value, all such units in the Survey Area and all those in the Housing Survey Sample in which a household interview was obtained*

Rateable Value (£)	All in Survey Area	Sample
1-10 . . .	9.8	9.7
11-20 . . .	31.0	29.8
21-30 . . .	16.8	16.7
31-40 . . .	14.2	14.0
41-50 . . .	13.7	13.2
51-100 . . .	14.2	16.1
101 or more . . .	0.3	0.4
All Values . . .	100.0	100.0

for all privately owned domestic subjects in the Survey Area the sample is slightly biased in favour of the higher value categories. This could be a consequence of the inclusion of empty dwellings in the population from which the sample was drawn. Some of these units must have been empty awaiting demolition rather than a new occupier, 12 had in fact been demolished before the interviewer arrived (see Table 7.51). Such units

(1) The number of rateable units here is slightly lower than in Table 7.7 because of the accidental exclusion of that part of Falkirk Parish within Central No. 2 District of Stirling County when the sample was being drawn.

would tend to have a comparatively low rateable assessment and it is thus probable that the population from which the sample was drawn included units of low rateable value which had been, or were about to be, withdrawn from the housing stock. If this were so, then, in the absence of some counterbalancing factor, a relatively lower response rate from sample units with a low assessment would be inevitable.

While derelict houses listed in the Valuation Roll could be selected in the sample newly completed houses, not so listed, could not.

4. However even if the sample is reasonably representative of the stock of domestic rateable units in the Area the households living in them do not necessarily constitute an equally unbiased sample of all households. Some indication of the nature of any bias can be obtained by comparing the average household sizes of the sample households with those for all households in the Area at the 1961 Census.

TABLE 7.55

*Average household size: households occupying sample rateable units and all households in the Survey Area, 1961*

	Sample Population	Total Survey Area 1961
Owner-occupiers . . . . .	2.8	2.8
Private tenants . . . . .	2.8	2.8
Public sector tenants . . . . .	3.3	3.3
All households . . . . .	3.1	3.3

Source: Total Survey Area, Census 1961, Scotland, Scale A tabulations

Table 7.55 shows that although the average size of household for owner-occupiers and private sector tenants is the same for the sample population and for the total Survey Area population in 1961, the average sample public sector household is smaller and, as public sector tenant households form two-thirds of the total, the overall sample average is lower than the Census average for the whole Area.

This comparative difference could be an indication of real changes in the Area since 1961, rather than of sampling error but, as this cannot be established here, the fact remains that large households may be under-represented in the public sector sample.

5. The household questionnaire was a simplified version of that used for the Scottish Housing Survey. The two most important omissions concerned the number and intentions of household members trying to move when the moving group did not include the housewife and the mortgage, or other financial arrangements, of households buying their house. Here, however, it proved possible to supplement Survey data with information from the Register of Sales on the purchase prices of owner-occupied dwellings in the sample. (See para 8 below).

In the case of the rateable unit as distinct from the household(s) living in it, here too the data sought was more or less the same as for the Scottish Survey, but with the omission of floor area and the inclusion of an assessment of the physical environment of the rateable unit. The assessments of the age, fitness and life, and physical environment of rateable units were made by members of the Edinburgh team, not the household interviewers.

#### *Fitness and Life*

6. The concept of unfitness is that of unsuitability for human habitation within the meaning of the Housing

Acts. A house not classified as 'unfit' by the local authority is thereby 'fit' almost by default. In deciding whether or not a house is 'unfit' a local authority is required to have regard to its condition in respect of the following matters:

- (a) general state of repair;
  - (b) structural stability;
  - (c) freedom from dampness;
  - (d) natural lighting;
  - (e) air space;
  - (f) ventilation;
  - (g) adequacy and accessibility of water supply;
  - (h) adequacy and accessibility of sanitary and other conveniences;
  - (i) drainage;
  - (j) conditions of paving and drainage of courts, yards, or passages;
  - (k) facilities for storage, preparation and cooking of food and for the disposal of waste water;
- "and the house shall be determined to be unfit for human habitation if, and only if, it is so far defective in one or more of the said matters that it is not reasonably suitable for occupation in that condition"

There is obviously room for considerable variation in the interpretation of this instruction, and it is clear too, that a house classified as 'fit' simply because it cannot be condemned as 'unfit', is a far from satisfactory place in which to live.

The Survey team did not attempt an independent assessment of fitness but identified 'unfit' rateable units in the sample from lists of unfit houses supplied by the six local housing authorities.

Estimation of the future length of life of 'fit' rateable units was based on an external inspection of properties by teams of at least two architect-planners supplemented by knowledge of building types and from local authority officers.

Assessments of the practicability of lengthening life were based either on survey work previously carried out by the local authorities or examination of the attitudes of the local authorities to grants for similar purposes.

Estimates of the practicability of providing amenities were based on the pattern of grants already made to similar properties.

Before embarking on the outside survey work an exhaustive plotting operation was carried out and broad periods of development were recorded from old maps; the location of all unfit houses was plotted; the location of all properties for which standard improvement grants had already been made was plotted and clearance areas and areas of comprehensive development were located.

Thus, estimates of what is practicable, in terms both of lengthening life and providing amenities, are not based solely on what is physically possible but have built into them current attitudes to renovation and adaptation and may therefore underestimate what could be done given determination and drive.

#### *Physical Environment<sup>(1)</sup>*

7. The inclusion of an assessment of the physical environment of rateable units in the Housing Survey was made at the request of the Edinburgh team. Their classification of environment uses a positive approach—the presence of certain specified conditions rather than the mere absence of nuisance.

It assumes that a good environment should meet the following requirements.

<sup>(1)</sup> This section is based on a report by Miss Sheila McDonald.

TABLE 7.56

*Assessment of the physical environment of rateable units*

Class of environment	Road Use	Layout	Parking	Surrounding land use and landscape	Open Space	Visual Quality
a (Poor)	Main traffic route.	Housing frontage on pavement and/or inadequate space about buildings.	No garages. Kerbside parking only.	Absence of planting and/or outlook to noxious land uses.	No garden or only drying greens and no access to open space.	Jarring use of materials or unsympathetic or dull design or layout.
b (Fair) (between 'a' and 'c')						
c (Fair +)	Occasional or light traffic route.	Separation from road by front garden.	Some garages and/or off-street parking.	Some trees or planting. Outlook to compatible land uses.	Garden, or access to communal garden, open space or children's playground.	Sympathetic use of materials or inoffensive in character.
d (Good) (between 'c' and 'e')						
e (Very good)	Residents only service road or cul-de-sac.	Pedestrian segregation.	Approximately 1:1 garaging and/or off-street parking.	Good surrounding landscape. Pleasant approach and outlook.	Private or communal garden, plus play area or park.	Unified design and layout.

*Other categories:*

- f Rural (farm workers' cottages, isolated crafts, etc.).  
 g Dwellings in large grounds (i.e., over  $\frac{1}{2}$  acre).  
 h No information.

1. It should be safe for children and pedestrians.
2. It should provide space for parked vehicles other than on the highway.
3. It should not be subject to pollution or excessive noise, whether from vehicles or from incompatible land uses.
4. It should provide adequate space about buildings whether by private gardens, communal areas, playgrounds or public open space.
5. It should be pleasant in character and provide a pleasant outlook for living rooms.
6. It should have a satisfactory micro-climate.
7. It should be served by social facilities, schools, shops etc.

In practice, the degree to which any given environment meets these criteria can be judged by reference to five variables for each of which a range of variation can be defined, namely:

- Type of road serving dwellings
- Form of layout
- Parking provision
- Surrounding land use and landscape
- Open space
- Visual quality.

Table 7.56 shows how the conditions specified for each variable were combined to define the categories of the environmental classification.

*The Register of Sasines<sup>(1)</sup>*

8. The Register of Sasines is the national land Register for Scotland in which every writ or deed affecting land must be recorded if it is to be effective. A separate Search Sheet is maintained for every unit of property in Scotland on which are entered details

of all the transactions relating to that property. Search sheets for properties in each County are stored together, indexed by persons (under the name of the present registered proprietor) and places. Thus the Register could be used as a source of data on the purchase price of houses in the Survey Area. For practical reasons it was decided to restrict the investigation to transactions since the beginning of 1965 concerning owner-occupied rateable units in the Housing Survey sample. The Search Sheet for each rateable unit had to be located and the date and purchase price on each occasion that the house had been sold between January 1st 1965 and June 30th 1965 extracted<sup>(2)</sup>. If the property had changed hands during the period other than by purchase, by gift or inheritance for example, the date of this transfer was noted.

Of the 454 rateable units in the Survey Sample established as being owner occupied, Search Sheets could not be found for 59. There are several reasons for this. In some cases the proprietors' names and addresses, as given in the Valuation Rolls, were not sufficiently detailed. Women proprietors were particularly difficult; for although they are supposed to be indexed under both maiden and married names there is always the possibility that the name by which they are now known may not be one of those under which

<sup>(1)</sup> Although the Register is open to the public the work described here would not have been possible without the provision of special facilities by the Keeper of the Registers and his staff. I would like to take this opportunity to express my appreciation of the assistance so willingly given to me and Mrs. McCarroll during our extended search.

<sup>(2)</sup> The search was made in December 1965, ample time for transactions in the first six months of the year to have been recorded on the Search Sheets.



they are indexed. Further, changes of ownership, particularly of small tenement properties, are not always registered. However, even if the proprietor could not be found in the index of persons it should have been possible to trace the property in the index of places. Here, too, there were difficulties in reconciling the addresses on the sample lists with the descriptions on the Search Sheets, particularly if the Search Sheet description did not include a house name or

street number. Changes in street names and numbering over the years added to the confusion. From Table 7.57 which compares the percentage distribution of traced and untraced units by rateable value it can be seen that a higher proportion of the untraced units were of a low rateable value; 39% of untraced units (Table 7.57 (col 2)) were assessed as £20 or less compared with 24% of traced units (col 1). Or, expressed in another way, while only 14% of all units

TABLE 7.57

*Percentage distribution by rateable value of traced and untraced owner-occupied rateable units and all owner-occupied units in the Housing Survey Sample*

Rateable Value £	Traced % (1)	Untraced % (2)	All % (3)	Untraced units as a percentage of all in the category % (4)
1-10 . . .	5.6	11.9	6.4	25
11-20 . . .	18.1	27.1	19.4	19
21-30 . . .	18.1	11.9	17.5	9
31-40 . . .	15.5	11.9	13.0	11
41-50 . . .	15.7	15.2	18.2	11
51-100 . . .	25.2	22.0	23.0	13
101 or more . . .	0.8	0.0	0.7	0
All	Per cent	100.0	100.0	100.0
	Number	375	59	434

TABLE 7.58

*Average prices paid for owner-occupied rateable units in the Housing Survey Sample in each year from 1955-1964 by type of building and showing the number and average rateable value of units in each category*

Type of Building		YEAR										
		1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965 <sup>1</sup>
Whole house detached	No. of transactions .	5	3	2	8	4	2	6	6	10	3	5
	Average price . £	1,742	467	2,625	2,626	2,549	1,300	3,219	3,379	2,759	2,825	2,867
	Average rateable value £	57	47	54	66	61	50	73	69	45	38	46
Semi-detached	No. of transactions .	6	7	10	6	6	8	7	12	15	11	5
	Average price . £	1,718	1,661	1,876	1,217	1,443	1,969	2,536	2,359	2,031	2,348	1,711
	Average rateable value £	43	41	42	36	38	36	45	46	43	41	37
Terraced	No. of transactions .	1	2	5	1	1	1	0	0	1	1	0
	Average price . £	1,200	950	1,600	560	1,800	1,900	—	—	2,205	4,375	—
	Average rateable value £	49	36	45	29	43	29	—	—	42	62	—
Flat in a block	No. of transactions .	14	8	10	10	10	11	18	21	16	22	9
	Average price . £	396	558	425	512	518	518	693	658	661	571	752
	Average rateable value £	15	20	19	17	18	17	13	14	15	15	16
Any other type	No. of transactions .	0	0	0	0	0	1	0	0	1	0	0
	Average price . £	—	—	—	—	—	5,000	—	—	2,000	—	—
	Average rateable value £	—	—	—	—	—	42	—	—	74	—	—
All types	No. of transactions <sup>2</sup> .	26	20	25	25	21	23	31	39	41	37	19
	Average price . £	992	970	1,427	1,359	1,234	1,359	1,490	1,600	1,744	1,365	1,562
	Average rateable value £	31	33	34	30	33	28	32	32	34	25	30

*Note:* All rateable values are those for the year 1964-65.

<sup>1</sup> Six months only.

<sup>2</sup> This row adds to a total of 367 transactions as some houses were sold more than once during the period.

could not be found 25% of units with a rateable value of £10 or less remained untraced (col 4).

Out of the 375 units for which Search Sheets were located, 235 had changed hands at least once, 132 apparently had not, while for 14 the date and nature of any change were too obscure for inclusion in the analysis.

It must be pointed out here that while there is no possibility of a sale being recorded when none occurred it is possible that some sales of lower priced units (say of less than £200) may not have been registered. This factor and the greater initial difficulty in collecting data for units of a low rateable value should be borne in mind when interpreting the data in Table 7.58.

Table 7.58 has a number of limitations. Beginning with a group of houses which happened to be owner-occupied in the early summer of 1965 it works backwards from that point. Thus it cannot be claimed that the prices paid for these particular houses in earlier years are necessarily representative of all transactions at the time. The average rateable values in each year are those applying to the houses concerned for the year 1964-65. But during a period of ten years a house may have undergone structural alteration. It could be incorporated in the table at a price appropriate to its condition before improvement but with a post improvement rateable value. In spite of this inconsistency rateable values, constant at the levels of 1964-65, are of value in providing a yardstick against which changes in price from year to year may be assessed.

### The Household

9. A household was defined as a group of people living in the rateable unit and who were catered for by the same person (the housewife). Being catered for here means having at least one meal a day, when in residence, provided by the housewife.

The household classification follows the Scottish Housing

Survey in distinguishing six types of household.<sup>(1)</sup> These types are given below:

Type of household	Number of persons aged	
	under 16	16 or over
Individuals under 60 . . . . .	None	1, None aged 60 or over
Small adult . . . . .	None	2, None aged 60 or over
Small families . . . . .	1 or 2	1 or 2
Large families . . . . .	3 or more or 2	any number 3 or more
Large adult . . . . .	None or 1	3 or more
Older small . . . . .	None	1 or 2, at least 1 aged 60 or over

Four of these types, small and large adult households and small and large families were each sub-divided into those in which the housewife was a married woman aged under 45 years, and all other cases. It was hoped that in this way it would be possible to distinguish those households likely to grow by the addition of more children.<sup>(2)</sup> Unfortunately this method was not effective because the young married woman was not necessarily the housewife. In some households containing more than one married woman, a mother and daughter, or mother-in-law and daughter-in-law for example, the older woman was regarded as the housewife.

The housewife was defined as the member of the household responsible for most of the domestic duties and it was this person who was interviewed. "Housewives" are not necessarily women; Table 7.59 below gives the sex and marital status of those in the Housing Survey sample.

The head of the household is here the person who either owns the accommodation, or is legally responsible for the rent, or is responsible (by virtue of employment or relationship to the owner) for enjoying it rent free. Where this person was a married woman, then her husband was regarded as the head of the household provided he was, in fact, a member of the household. Housewife and head of household may be the

<sup>(1)</sup> See also J. B. Cullingworth *English Housing Trends*, Occasional Papers on Social Administration, No. 13, London, G. Bell and Sons Ltd., 1965, p. 112.

<sup>(2)</sup> See R. Glass and F. G. Davidson "Household Structure and Housing Needs", *Population Studies* Vol. IV No. 4, March, 1951 pp. 402 for a classification of households on the basis of their growth potential.

TABLE 7.59  
*Housewives in the Housing Survey Sample by sex, marital status and form of tenure*

	Private Sector			Public sector tenants
	Owner-occupiers	Tenants	Both	
<b>Men:</b>				
Single . . . . .	7	4	11	4
Married . . . . .	1	1	2	—
Widowed or divorced . . . . .	10	11	21	9
<b>All statuses . . . . .</b>	<b>18</b>	<b>16</b>	<b>34</b>	<b>13</b>
<b>Women:</b>				
Single . . . . .	35	21	56	7
Married . . . . .	259	174	433	216
Widowed or divorced . . . . .	56	40	96	35
<b>All statuses . . . . .</b>	<b>350</b>	<b>235</b>	<b>585</b>	<b>278</b>
<b>Both sexes . . . . .</b>	<b>408</b>	<b>251</b>	<b>659</b>	<b>291</b>
<b>Not known . . . . .</b>	<b>2</b>	<b>—</b>	<b>2</b>	<b>1</b>

TABLE 7.60

Percentage distribution of households by availability and use of kitchen and tenure

	Private Sector			Public Sector	Both
	Owens	Rents	All		
<i>Self use of kitchen</i>					
Eating some meals therein . . .	12.9	7.0	19.9	61.6	81.5
" no meals " . . .	3.9	1.8	5.8	4.0	9.7
All with sole use . . .	16.8	8.9	25.7	65.6	91.3
<i>Shared use of kitchen</i>					
Eating some meals therein . . .	0.0	0.0	0.0	0.0	0.0
" no meals " . . .	—	—	0.1	0.5	0.6
All with shared use . . .	—	—	0.1	0.5	0.6
Without use of kitchen . . .	2.9	3.1	6.0	2.1	8.1
All households . . .	19.8	12.0	31.8	68.2	100.0

same person. For a distribution of heads of households by sex and employment status see Table 7.62.

10. *Rooms* Sculleries, bathrooms, lavatories, wash houses, larders, cellars, landings and uninhabitable rooms (unless in fact inhabited) were not counted as rooms. Attics (so described by the household) were only included when in use as bedrooms, living rooms etc. Games rooms, billiard rooms were counted as rooms. Kitchens present particularly difficult problems. In the Census a kitchen is only counted as a room "if meals are regularly eaten there, or it is slept in". It is a moot point whether or not a kitchen not used for eating should be counted as a room. But if only "eating kitchens" are included then a family small enough to eat breakfast in their kitchen may appear to have more rooms than another family living in an identical house which, either because it is too large, or because it prefers not to, is not in the habit of dining in the kitchen. Whether kitchens are or are not counted as rooms the decision is an arbitrary one. In this Survey, the questionnaire established whether or not the kitchen was used for eating (but not if it was used for sleeping) and the tabulations include all kitchens or eating kitchens only, as seems most appropriate. Table 7.60 gives a percentage distribution of households by the possession and use of a kitchen. 82% of all households had exclusive use of a kitchen and ate in it, 10% had exclusive use but did not eat in it, 1% shared a kitchen, 8% were without.

Attics present similar problems and the decision to include only attics in use means that identical structures will be counted as rooms in some instances but not in others. Families so short of space that they are obliged to use the attic as a bedroom will appear to have more rooms than a smaller family living in an identical house.

*Ratio of persons per room.* This ratio is derived from the total number of persons in the household, regardless of age, and the total number of rooms, counting eating kitchens only.

#### Statutory overcrowding

The permitted number of persons is:

where a house consists of one room . . .	2 persons
two rooms . . .	3 persons
three rooms . . .	5 persons
four rooms . . .	7½ persons
five or more rooms . . .	2 persons per room

In counting the number of persons, children aged under one year are excluded, while children aged one but under ten are counted as a half. "A room does not include any room of a type not normally used in the locality either as a living room or as a bedroom". In classifying Survey households all kitchens were included.

A house is also overcrowded if the number of persons sleeping in it "is such that any two of those persons, being persons ten years old or more of opposite sexes and not being persons living together as husband and wife, must sleep in the same room". To become enforceable in any given area, this standard, first laid down by the Housing Act of 1935 and repeated in the 1966 Act, requires the designation of an "appointed day", by the Secretary of State. For most areas the "appointed day" has still to come.

#### Bedroom Standard<sup>(1)</sup>

This is calculated by working out how many bedrooms a household would need to meet a specified standard of sleeping accommodation and comparing this number with the number of rooms it actually has. A household which, according to the standard, needed 3 bedrooms but only had 2 would then be said to be 1 below standard.

The allocation of bedrooms by the standard is as follows:

1. Each married couple and each unmarried person aged 21 or more in the household—a separate bedroom.
2. Persons aged 10–20 years inclusive, of the same sex, share—two per room.
3. Persons aged 10–20 years inclusive, not so paired were to be paired with a child of the same sex aged under 10; if there is no such child in the household then the person is to be given a separate bedroom.
4. Any remaining children under 10 years of age to be paired off irrespective of sex and allocated a bedroom per pair.
5. Any remaining persons to be given separate bedrooms.

Any room described as a bedroom to be counted as one.

#### The occupational classification

11. In some ways it is incorrect to speak of an occupational classification because the scheme used in the Survey was derived from the Registrar General's system of classification by socio-economic groups.

<sup>(1)</sup> See J. B. Callingsworth, *op. cit.* p. 117.

TABLE 7.61

*The derivation of the occupational classification*

Housing Survey Classification	Registrar General's socio-economic groups	Condensed classification
Professional workers, employers and managers . . . . .	1, 2, 3 and 4	Professional workers, employers and managers
Intermediate non-manual workers . . . . .	5	Intermediate and Junior non-manual workers
Junior non-manual workers . . . . .	6	
Personal Service workers . . . . .	7	Personal service workers and workers on own account
Own account workers other than professional . . . . .	12	
Foremen . . . . .	8	Foremen and skilled manual workers
Skilled manual workers . . . . .	9	
Semi and unskilled manual workers	10 and 11	Semi and unskilled manual workers
Farmers . . . . .	13 and 14	Farmers and agricultural workers
Agricultural workers . . . . .	15	
Indefinite and not stated . . . . .	17	Not stated
Armed Services . . . . .	16	(None in Survey Sample)

which are designed to contain people of similar social, cultural and recreational standards and behaviour. Thus, although allocation to a particular socio-economic group is made on the basis of occupation and employment status the aggregation of occupations into socio-economic groups is based on broad social considerations, on what are considered to be the social implications of employment in a particular occupation rather than on a narrow examination of the work performed or the nature of the finished product.

The Registrar General's system of classification, used for the first time at the 1961 Census recognises 17 socio-economic groups. These are listed, with brief definitions, at the end of this Appendix.

For the Housing Survey tabulations some of the groups were combined, reducing the number from 17 to 12, while for presentation in the text the process of

combination was continued to reduce the number of groups to 8, one of which, the Armed Services, proved unnecessary. Table 7.61 illustrates this process of condensation.

Classification by occupation was limited to heads of households, but some heads of households were unemployed, others retired, while some, mostly women, had never had an occupation. This last group are here described as unoccupied. The unemployed and retired were classified to their former occupations, the unoccupied as 'Not Stated'. The percentage distribution of heads of households in the sample, by sex and employment status is given below. 8.8% of all heads of households are unoccupied women who comprise four fifths of the heads of households shown by the occupation classification as 'Not stated and indefinite' (10.3% of all heads, see Table 7.32).

TABLE 7.62

*Percentage distribution of heads of households by sex and employment status*

employment status					per cent	
	Earner heads		Other heads		All heads	Not known
	Earners	Unemployed	Retired	Unemployed		
Men . . . . .	66.6	2.4	10.9	0.6	80.5	} 0.3
Women . . . . .	5.4	0.6	4.5	8.8	19.2	
Both Sexes . . . . .	72.0	3.0	15.4	9.3	99.7	

1. *Employers and managers in central and local government, industry, commerce, etc.—large establishments*  
Persons who employ others or generally plan and supervise in non-agricultural enterprises employing 25 or more persons.
2. *Employers and managers in industry, commerce, etc.—small establishments*  
As in 1. but in establishments employing fewer than 25 persons.
3. *Professional workers—self-employed*  
Self-employed persons engaged in work normally requiring qualifications of university degree standard.
4. *Professional workers—employees*  
Employees engaged in work normally requiring qualifications of university degree standard.
5. *Intermediate non-manual workers*  
Employees, not exercising general planning or supervisory powers, engaged in non-manual occupations ancillary to the professions but not normally requiring qualifications of university degree standard; persons engaged in artistic work and not employing others therein; and persons engaged in occupations otherwise included in Group 6, who have an additional and formal supervisory function.
6. *Junior non-manual workers*  
Employees, not exercising general planning or supervisory powers, engaged in clerical, sales and non-manual communications and security occupations, excluding those who have additional and formal supervisory functions.
7. *Personal service workers*  
Employees engaged in service occupations caring for food, drink, clothing and other personal needs.
8. *Foremen and supervisors—manual*  
Employees (other than managers) who formally and immediately supervise others engaged in manual occupations, whether or not themselves engaged in such occupations.
9. *Skilled manual workers*  
Employees engaged in manual occupations which require considerable and specific skills.
10. *Semi-skilled manual workers*  
Employees engaged in manual occupations which require slight but specific skills.
11. *Unskilled manual workers*  
Other employees engaged in manual occupations.
12. *Own account workers (other than professional)*  
Self-employed persons engaged in any trade, personal service or manual occupation not normally requiring training of university degree standard and having no employees other than family workers.
13. *Farmers—employers and managers*  
Persons who own, rent or manage farms, market gardens or forests, employing people other than family workers in the work of the enterprise.
14. *Farmers—own account*  
Persons who own, rent or manage farms, market gardens or forests, and having no employees other than family workers.
15. *Agricultural workers*  
Employees engaged in tending crops, animals, game or forests, or operating agricultural or forestry machinery.
16. *Members of armed forces*
17. *Indigents*  
Persons with inadequately stated occupation.

# The Social Services<sup>(1)</sup>

B. M. SWIFT

## Introduction

8.1. This Chapter has a dual purpose—to describe the present provision of health, welfare and education services in the Survey Area and to consider the implications for the future of both the population expansion envisaged by this Survey and, of what might be termed, autonomous trends within the social services. It does not pretend to be a fully comprehensive review of the services available. This would have formed too complex a task to be undertaken within the limits of time and research resources available. Instead, attention has been concentrated on those services, namely education and the hospital services, which require extensive physical assets rather than on those which, either because of their nature (domiciliary nursing, for example) or, because of their comparatively limited clientele, require relatively little capital equipment. The decision to limit the field of study in this particular way may be justified on several grounds. Firstly, services requiring large scale capital investment cannot be expanded at short notice and it is therefore important that future needs should be foreseen. Secondly, they may require the commitment of scarce national resources, and investment decisions must be based on a full consideration of available alternatives and their economic consequences when the investment is to take place in the social sector no less than in any other sector of the economy. Thirdly, they are large land users and the physical planners must be warned of future space requirements. From the point of view of the consumers, it is important that the planners be given sufficient notice to ensure the reservation of sites as conveniently located as possible.

8.2. The task of description is complicated by the fact that the social services are the responsibility of different types of administrative unit and that the boundaries of these units are not coterminous either with each other or with those of the Survey Area. Health services are provided by three different types of public authority; the hospital services by the Regional Hospital Boards, with Boards of Management responsible for day-to-day administration; general practitioner services and ophthalmic and pharmaceutical services are administered by the National Health Service Executive Councils, while county

councils and large burgh councils have responsibilities for public health and a wide range of personal health services. The provision of welfare services is the responsibility of county and large burgh councils, with valuable assistance from voluntary bodies. Education is a county council responsibility.

In no case does the entire Survey Area fall within the boundaries of any one unit.

8.3. A problem of quite a different nature arises in considering proposals for the future. Social services within the Area must develop within the framework of national policy. It is national policy which determines whether the necessary trained men and women will be available and whether the capital investment needed will take place. In these circumstances it would be foolish to recommend standards which, however desirable in themselves, have no chance of realization. For this reason, wherever specified standards have already been accepted as targets by the government, these will be adopted for the Area, but with a qualifying commentary where necessary.

8.4. With these limitations in mind, the general procedure in this Chapter will be to consider each of the major social services in turn, giving for each one a review of the present situation followed by a discussion of the expansion which will be needed to meet the needs and expectations of the existing population and of the proposed immigrant population. This form of presentation has the disadvantage that by considering each service in turn it tends to overlook their interdependence. It might be advisable, therefore, to point out that the present emphasis on future reductions in institutional care presupposes the development of adequate

(1) This Chapter incorporates the work of many people. In particular I should like to thank Miss Geeta Sumner and Mr. Randall Smith of the University of Glasgow, Department of Social and Economic Research, who assembled the data on the Hospital, General Practitioner and Local Authority Health and Welfare Services. Miss Sumner also commented on the Hospital Section of this Chapter, while the Section on the Local Authority Health and Welfare Services is based on her detailed analysis of these services in the Area. To her I am especially indebted.

But without the co-operation of the many officials in the social services concerned, who generously provided the Survey team with information and advice, this Chapter would not have been possible. Needless to say this good advice has not always been followed and the author must accept responsibility for the final result.

community health and welfare services and of proper liaison between each of the social services.

It will be convenient to begin with the services provided by the National Health Service and outside the main framework of local administration, i.e., the hospital and general medical services, and then continue with the local authority health and welfare services and education.

## II

### The Hospital Service

#### Present provision

8.5. With the exception of Bo'ness Burgh and inland district, which are in the county of West Lothian, the Survey Area is entirely within the Western Region.<sup>(1)</sup> Geographically, West Lothian is part of the South Eastern Region, but the practical significance of this separation is diminishing. By an agreement between the two Regional Boards emergency and accident services for Bo'ness are provided at Falkirk. Further, as it is now considered that under the current plans for the development of Central Scotland the general hospital services at Falkirk will be the most accessible for Bo'ness, the present separation of this part of the Survey Area may be ignored here.

The Western Regional Hospital Board has four hospitals in the Area providing general hospital services, the Falkirk and District Royal Infirmary, Falkirk Infectious Diseases Hospital, the Windsor Hospital, and the Denny and Dunipate Cottage Hospital.<sup>(2)</sup> These four hospitals are the sole charges of the Falkirk and District Hospitals Board of Management. The Belladyke Hospital (mental illness) and the Royal Scottish National Hospital (mental deficiency) have each their own Board of Management. The Eastern Regional Hospital Board has a small hospital at Bo'ness within the Survey Area. Bo'ness Hospital has 27 beds which takes some chronic and some acute cases. For reasons of convenience, most of the following discussion is in terms of the four Western Region hospitals and excludes Bo'ness Hospital.

8.6. Of course, the Survey Area is no more self-contained in its hospital services than in any other aspect of its social and economic life. The catchment areas of hospitals within the Survey Area extend beyond its boundaries, while residents may travel to hospitals outside—indeed, they will have to do so for some specialist forms of treatment.

For general hospital services the main differences between the catchment area of the Falkirk Hospital Group and the Survey Area are that in the north some parts of Denny are within the Stirling sphere of influence, while in the south and west the hospital catchment area extends beyond the Survey Area to include the whole of the Eastern No. 3 district of Stirling and Cumbernauld. The Regional Hospital Board estimate the 1951 population served by the Falkirk Hospital Group as 136 thousand, that is 10 thousand more than the Survey Area population at that time.

For the mental hospitals the situation is rather different in that both hospitals are regional rather than local institutions. The Belladyke Hospital, with 1,289 beds, provides services for the mentally ill from Stirlingshire, Clackmannanshire, part of Perthshire and east Dunbartonshire, except Kirkintilloch. The Royal Scottish National Institution, a mental deficiency hospital with 571 places in the Juvenile Hospital and 688 in the adult colony, takes patients from the counties of Stirling, Clackmannan, Dunbarton, Ayr, Bute, Wigtown, Kirkcudbright and Renfrew.

8.7. Table 8.1 shows the present number and distribution of beds by type and speciality for the hospitals, other than the two mental hospitals, sited in the Area.

Some specialities are not provided. At present, patients requiring neurosurgery go to Killearn Hospital, radiotherapy is provided at the Glasgow Western Infirmary, thoracic surgery at Edinburgh Royal Infirmary and plastic surgery (including burns) at Bangour and the Edinburgh Sick Children's Hospital.

#### Future Needs

##### Bed ratios: Introduction

8.8. The estimates of hospital requirements have been prepared by the technique adopted in the Hospital Plans for England and Wales and for Scotland, that is, by the application of ratios of beds needed per thousand population to the projected future population. The ratios given in the Hospital Plans are those considered appropriate for 1975. But the needs of the future are difficult to foresee, depending as they do on the interaction of a variety of unforeseen factors of unpredictable effect. Areas in which such changes may be expected are in the incidence of disease itself, in medical knowledge and its application, in the efficiency with which the hospitals are run, in the provision of domiciliary and community services. The Hospital Plan for Scotland is based on the assumption "that hospital treatment and care will be provided only for those who need it and that domiciliary services will be responsible for patients who do not need the special services that only a hospital can provide".<sup>(3)</sup> To the extent that this and other less explicit assumptions are proved false, the bed ratios will be inadequate guides to the future.

Further, the ratios are "valid only in relation to large areas and detailed study is needed to determine the right scale of local provision".<sup>(4)</sup>

<sup>(1)</sup> The Western Region is the largest of the Scottish Hospital Regions comprising the County of City of Glasgow, the counties of Argyll, Ayr, Bute, Clackmannan, Dumfries, Dunbarton, Kirkcudbright, Lanark, Renfrew, Stirling and Wigtown and all the burghs therein. The estimated population of the Region in 1964 was 2.96 million, 57 per cent of the total Scottish population.

<sup>(2)</sup> This small hospital (10 I.N.T. beds) is to close shortly.

<sup>(3)</sup> Department of Health for Scotland, *Hospital Plan for Scotland*, Cmd. 1602, Edinburgh H.M.S.O., 1962, p. 13, para. 36.

<sup>(4)</sup> National Health Service, *A Hospital Plan for England and Wales*, Cmd. 1604, London H.M.S.O., 1962, p. 3, para. 9.

TABLE 8.1  
General Hospital Services: The number of beds in each  
hospital by speciality, March 1965

	Falkirk and District Royal Infirmary	Falkirk Infectious Diseases Hospital	The Winder Hospital <sup>(1)</sup>	Deasy and Dunipace Hospital	All Institutions
<i>Acute</i>					
General Medicine . . .	48	28	—	—	76
General Surgery . . .	69	—	—	—	69
Orthopaedics . . .	24	—	—	—	24
Pediatrics . . .	28	—	—	—	28
Gynaecology . . .	26	—	—	—	26
Ear, Nose, Throat . . .	19	—	—	10	29
Tuberculosis . . .	—	42	—	—	42
Infectious Diseases . . .	—	21	—	—	21
All . . .	214	91	—	10	315
<i>Maternity</i>					
Obstetrics . . .	62	—	—	—	62
<i>Geriatric</i>					
Chronic . . .	—	—	145	—	145
Geriatric . . .	33	—	—	—	33
All . . .	33	—	145	—	178
All beds . . .	309	91	145	10	555

Source: The Western Regional Hospital Board.

<sup>(1)</sup> In addition the Winder Hospital also provides Part III Accommodation (79 beds) administered by the Falkirk Borough Council.

The detailed studies envisaged were not attempted here, but the Western Regional Hospital Board has provided some local information and, where the ratios for Scotland as a whole have been used, they have been applied with due regard to the demographic structure of the Survey Area population.

#### Acute beds<sup>(1)</sup>

8.9. In 1963 approximately 30 per cent of all available staffed beds in the Western Region were classified as for acute illness, with a further eight per cent for infectious diseases and respiratory tuberculosis. Together they gave a ratio of 4.5 beds per thousand population, of which 3.6 were for acute illness.<sup>(2)</sup> The Hospital Plan for Scotland estimates that by 1975 a ratio of 2.5 beds per thousand should meet the needs for acute beds in populated areas outside cities.<sup>(3)</sup> This ratio was thought appropriate for the Survey Area, with the addition of 0.5 beds per thousand population to meet the standards for infectious diseases (0.3 per thousand) and for tuberculosis (0.2 per thousand) recommended in the Hospital Plan.<sup>(4)</sup> But it should be noted that while the reduction in provision for infectious diseases and tuberculosis is based on the decline in the importance of these diseases in recent years, a decline which it is confidently expected will continue, the reduction in the bed ratio for acute illness is contingent upon the provision of adequate domiciliary care and alternative accommodation for longer stay patients.

#### Maternity beds

8.10. The Hospital Plan standard of provision for maternity beds, 0.68 per thousand total population,<sup>(5)</sup> is derived from the recommendations of the Montgomery Committee.<sup>(6)</sup> But a national figure based on the population structure of the early 1960s would not allow for the effects of present and future differences between the demographic structure of the Survey Area and of Scotland as a whole, or for the increase in marriage and fertility rates discussed in our population projections.<sup>(7)</sup> It is obviously preferable for the estimates of the numbers of beds required to be based on the projected number of confinements, and this has been done.<sup>(8)</sup>

A further reason for rejecting the Hospital Plan ratio is that it incorporates the Montgomery

<sup>(1)</sup> As defined in the *Hospital Plan for Scotland*, *op. cit.*, p. 17, with the addition of beds for infectious diseases and respiratory tuberculosis.

<sup>(2)</sup> Derived from Scottish Home and Health Department, *Scottish Health Statistics, 1963*, Edinburgh H.M.S.O., 1964, Section VII, Table 5.

<sup>(3)</sup> *Hospital Plan for Scotland*, *op. cit.*, p. 17, para. 58.

<sup>(4)</sup> *Hospital Plan for Scotland*, *op. cit.*, p. 18, para. 56.

<sup>(5)</sup> *Hospital Plan for Scotland*, *op. cit.*, p. 17, para. 54.

<sup>(6)</sup> Department of Health for Scotland, Scottish Health Services Council, *Maternity Services in Scotland*, Edinburgh H.M.S.O., 1959. The committee recommended that provision should be made "for antenatal admissions of not less than 8 beds per 1,000 births per year together with lying in beds for 70 to 75 per cent of the total births", p. 40, para. 88.

<sup>(7)</sup> See Chapter 3.

<sup>(8)</sup> See Table 3.4, footnote 2.



Committee recommendation that provision should be made for 70-75 per cent of all births to be in hospitals. This was intended to provide for all cases where hospital confinement was desirable on social or medical grounds. But, as Table 8.2 shows, this level has already been passed.

TABLE 8.2

*The percentage of births in hospital and the average length of stay of maternity cases, 1955-1964*

Year	Percentage of all births in hospital <sup>(1)</sup>	Average stay in days <sup>(2)</sup>	
		Scotland	Western Region
1955	70	11	11
1956	70	11	10
1957	71	10	10
1958	72	10	10
1959	75	10	9
1960	74	10	9
1961	75	9	9
1962	77	9	9
1963	79	9	9
1964	80	9	9

Source: Scottish Health Statistics for each year.

<sup>(1)</sup> Live and still births. Hospitals, including private maternity homes.

<sup>(2)</sup> 1955-1959 figures are for maternity hospitals. 1960-1964 figures are for obstetric beds.

Institutional births as a percentage of all births in Scotland rose by 10 per cent to 74 per cent between 1950 and 1960, and by 1964 had reached 80 per cent. In the Western Region the proportion of hospital births is about four per cent lower.<sup>(1)</sup> In these circumstances, since to plan for the recommended level of hospital confinements would imply the unrealistic assumption of a reversal of present trends, allowance has been made for 80 per cent of all births to be in hospital.<sup>(2)</sup>

The other factor most likely to change in the future is the length of the normal stay in hospital. The Montgomery Committee's recommendation of ten days represented the consensus of informed opinion at that time rather than an objectively established need and, of course, opinions change. In fact, the average stay has fallen in recent years (see Table 8.2), but not necessarily because of a change in medical views. It would be an expected consequence of an increase in the proportion of all births taking place in institutions, because complicated cases, requiring a longer stay, would then form a decreasing proportion of all institutional births. It could also be a result of the general trend towards a shorter stay in hospital for all types of case. But, in part at least, it must represent an adaptation to a shortage of accommodation in the face of the unexpectedly large numbers of births in recent years and the growing preference for hospital confinement. However, in the absence of any

equally authoritative statement, our calculations assume a normal stay of ten days.<sup>(3)</sup> On this basis, given an occupancy rate of 80 per cent<sup>(4)</sup> and allowing for 80 per cent of all births to be in hospital, 34.3 beds would be required per thousand maternities and the average stay per hospital birth would be 12.3 days. These calculations do not allow for the uneven distribution of births throughout the year. Additional beds would be necessary to maintain standards during the spring peak.

However, it is by no means clear how important it is to maintain these standards. Comparison with other countries suggests that both the proportion of births in hospital and the normal post-natal stay are determined as much by social convention as need. There is thus a real problem here in determining what priority should be given to the provision of further maternity accommodation in the face of other competing claims on the resources available.

### Geriatric beds

8.11. These are beds for the treatment of conditions peculiar to the elderly. They include provision both for active treatment and rehabilitation and for longer stay, but not for acute illness. This is included in the acute bed ratio. Neither is it intended to provide for elderly persons who need care, but not the services which a hospital seeks to give. Under the present division of responsibility, such people should be looked after by the local authority.

The Hospital Plan for England and Wales found considerable divergences between areas in the provision for geriatric patients, but concluded that ten beds per thousand population aged 65 and over was sufficient in areas where the whole range of services for the elderly inside and outside hospital was well developed.<sup>(5)</sup> However, the Hospital Plan for Scotland<sup>(6)</sup> considers 15 beds per thousand population over the age of 65 to be necessary, and it is this higher figure which has been used here. If the 145 chronic beds at the Windsor Hospital are counted as geriatric beds this is about the level of provision in the Survey Area now.<sup>(7)</sup>

<sup>(1)</sup> Scottish Health Statistics for the years 1950 to 1962.

<sup>(2)</sup> The Review of the Hospital Plan comments that in some areas a higher proportion of hospital confinements than that suggested by the Montgomery Committee may be necessary to meet all needs "to take account in particular of the high risk factors associated with social classes IV and V". (Scottish Home and Health Department, *Review of the Hospital Plan for Scotland*, Cmd. 2877, Edinburgh H.M.S.O., 1966.) However, the argument here is not based on need but on the apparent preference for institutional confinement.

<sup>(3)</sup> For details of the assumptions concerning length of stay, see Table 8.3, footnote 1.

<sup>(4)</sup> See D. J. Newell, "Statistical Aspects of the Demand for Maternity Beds", *Journal of the Royal Statistical Society, Series A*, Vol. 127, Part 1, 1964, p.28.

<sup>(5)</sup> National Health Service, *A Hospital Plan for England and Wales*, op. cit., Cmd. 1604, London H.M.S.O., 1962, p.5, para. 16.

<sup>(6)</sup> *Hospital Plan for Scotland*, op. cit., p.17, para. 56.

<sup>(7)</sup> In this respect the Survey Area is better provided than the Western Region as a whole.

### *Mental disorder<sup>(1)</sup>*

8.12. The care and treatment of the mentally disordered is currently undergoing a major reappraisal. The new approach, with its emphasis on community care and on informal admission for those in need of hospital care and treatment, is embodied in the 1960 Mental Health (Scotland) Act. The Act envisages the development by local authorities of a comprehensive community mental health service. Such a service would obviously have a considerable impact on the need for hospital care. Thus, for present purposes the implementation of the Act must be regarded as constituting an additional source of uncertainty about the future.

### *Mental illness*

8.13. Since, in 1953, beds for mental illness accounted for a third of all available staffed beds in Scottish hospitals, future trends in need are not without significance. In recent years the number of beds has fallen, from 22 thousand in 1958 to 21.5 thousand in 1964, not, however, because of a fall in the incidence of mental illness. On the contrary, the number of admissions has risen, but has been more than offset by a higher discharge rate and a reduction in the period of stay in hospital. The removal of formalities in admission and discharge has encouraged more people to come forward for treatment. Changing methods of treatment and greater public understanding now permit the earlier discharge of patients, some of whom in former years might well have remained in hospital for life. The problem is to determine the extent to which these factors will continue to operate in the future. The Hospital Plan for Scotland does not commit itself on this point. However, an analysis by the Western Regional Hospital Board of admissions to the Bellisdyke Hospital in 1951 and 1954 concludes that a bed ratio of 2.77 per thousand would be appropriate for Stirling and Clackmannan given no further change in admission rates, and an occupancy rate of 85 per cent for short stay and of 95 per cent for long stay mental illness units. A ratio of 2.77 would involve a reduction of 1.15 per thousand from the level of 1953, and our estimates of beds needed have been made on this basis.<sup>(2)</sup>

### *Mental deficiency*

8.14. One of the problems of estimating future requirements for mental deficiency is that so little is known about its present incidence.<sup>(3)</sup> This is partly a consequence of the inadequacy of existing services, but it is also a natural result of the impossibility of formulating any precise definition of the condition.<sup>(4)</sup> However, this is less a problem in the determination of the need for hospital care than for the establishment of community services, since the hospitals will be caring for the grossly handicapped about whose need there will be little doubt. For planning purposes it is also necessary to know whether the number of defectives may be expected to increase or decrease in the future. It has been argued that lower infant mortality rates will

allow a higher proportion of handicapped babies to survive. But, on the other hand, the proportion of defective babies might be expected to fall through greater pre-natal care. In his review of the subject, Dr. Tizard concluded that no large increase in the number of the mentally sub-normal appeared to have occurred during the last generation, but that owing to higher survival rates the number of adult defectives might be expected to rise in the future.<sup>(5)</sup>

Although there has been an improvement in recent years the supply of institutional places is still generally considered to be inadequate. The Committee on Mental Deficiency described the shortage of such accommodation as extreme, but the bed ratio for Scotland, only 0.85 per thousand population at the time of their report,<sup>(6)</sup> had risen to 1.18 by 1964, 1.32 for the Western Region. Apart from any possible increase in the number of defectives, it is expected that the proportion for whom places are sought may well increase in the future. Before the 1960 Act a mental defective could not be placed in an institution unless certified under the mental deficiency acts. Parents who might have been justifiably reluctant to take such a step may now be desirous of institutional care for their child.

The Hospital Plan for Scotland suggests a ratio of 1.6 beds per thousand as the basis for future planning.<sup>(7)</sup> The Western Regional Hospital Board are using a ratio of 1.48, and this has been used here.<sup>(8)</sup>

(1) This term will be used to denote mental illness and mental deficiency.

(2) The Hospital Plan for England and Wales concluded that by 1975 only 1.6 beds would be needed. But this interpretation of the evidence has been questioned. See D. C. Paige and K. Jones, "Health and Welfare", in *The British Society* in 1975, Ed. W. Beckerman, G.U.P. 1965, chapter XIII, p.425.

(3) The Committee on Mental Deficiency in Scotland, 1957, had to rely on the estimates of the Mental Deficiency Committee of 1929 and, in 1961, were themselves quoted by the Committee on Mental Health Services of Local Authorities. (Scottish Health Services Council, *Report by the Standing Advisory Committee on Local Authority Services*, Edinburgh H.M.S.O., p.12, para. 30).

(4) "Because grade of mental defect is defined behaviourally in terms of gravity of intellectual handicap as measured by appropriate intelligence tests, and by retardation or abnormality in social behaviour, it follows that the diagnosis of individuals as mentally subnormal . . . cannot in the nature of things be very precise". J. Tizard, *Community Services for the Mentally Handicapped*, London, O.U.P., 1964, p.7.

(5) J. Tizard, *op. cit.*, p.33.

(6) Scottish Health Services Council, *Mental Deficiency in Scotland*, a Report by a Sub-Committee of the Standing Medical Advisory Committee, Edinburgh, H.M.S.O., 1957, p.8, para. 18. The date of the ratio of 0.85 is not given but internal evidence suggests the year 1954.

(7) *Hospital Plan for Scotland*, *op. cit.*, Cmd. 1002, p.17, para. 54.

(8) A ratio of 1.48 was in fact suggested by Dr. Tizard who, in commenting on the ratio of 1.4 recommended in the Hospital Plan for England and Wales pointed out that in London, where the service, although it did not meet all needs, was of long standing and on a more generous scale, there was a ratio of 2.22 beds per thousand population. J. Tizard, *op. cit.*, p.152.

### Bed ratios: Summary

8.15. The ratios of beds to population on which it is proposed to base our estimates of future requirements are set out in Table 8.3. The ratios for 1971 have been calculated by arbitrarily assuming that the change in each year will be equal to the annual average over the whole period. No further change has been allowed for after 1976, not because it is unlikely, but simply because the direction and size of change are too unpredictable.

TABLE 8.3  
Bed ratios, 1963, 1971 and 1976

	1963	1971	1976
<i>Ratios per thousand total population</i>			
Acute . . . . .	4.3	3.6	3.0
(Including infectious diseases and respiratory tuberculosis)			
Mental illness . . . . .	3.62	3.21	2.77
Mental deficiency . . . . .	1.32	1.43	1.48
<i>Ratios per thousand population aged 65 and over</i>			
Geriatric . . . . .	15	15	15
<i>Ratios per thousand maternity</i>			
Maternity <sup>(1)</sup> . . . . .	34.3	34.3	34.3

Source: 1963: Ratios for the Western Region derived from Scottish Home and Health Department, *Scottish Health Statistics, 1963*, Edinburgh, H.M.S.O., 1964, Section VIII, Table 5.  
1976: As given in text for 1975.

1971: Beds for acute illness and mental illness, derived from the ratios for 1963 and 1976 by assuming a constant annual average fall.  
Mental deficiency: It was assumed that the target for 1975 would be reached by 1971.

<sup>(1)</sup> Following D. G. Peig, "Births and Maternity Beds in England and Wales in 1970", *National Institute Research Review*, No. 22, November, 1962, p.37.

Provision was made for:

(i) Normal care,

(a) 10 days normal post-natal care for 90 per cent of hospital births and one day's antenatal care for a quarter of these.

(b) 4-75 days post-natal care for the remaining 10 per cent of hospital births plus one day's antenatal care for a quarter of them.

(ii) Extra post-natal and antenatal care for special cases.

(a) 4-5 days average extra post-natal care for 10 per cent of all births (i.e. whether at home or in hospital).

(b) 4-5 days average antenatal care for 25 per cent of all births.

Allowance was made for 90 per cent of all births to be in hospital, and for 80 per cent occupancy (see text).

### Number of beds

8.16. Table 8.4 gives the results of applying the assumed bed ratios to the projected populations described in Chapter 3. Since, with the exception of acute illness and mental illness between 1971 and 1976, bed ratios are held constant, the gradual increase in number of beds needed is a consequence of the changes in size and structure of the projected populations. But it will also be seen from the Table that, given the assumptions of Chapter 3, the variations between the projections of the present

population are too small to lead to any significant differences in estimated bed requirements. Therefore, Table 8.5, showing the quinquennial increase in numbers of beds, uses only one projection of the present population—Projection II (see Table 8.4, footnote <sup>(1)</sup>). It may have been unrealistic to apply the same ratios to the immigrant as to the existing population, as it is to be expected that healthy families are more mobile than the unhealthy. Such a process of self-selection would be difficult to quantify. If it exists, then the estimates of the needs of the immigrant population will be unduly pessimistic.

It can be seen from Table 8.5 that the period of maximum growth of need is not the same for each type of bed. For beds for acute illness, between 1971 and 1976 the reduction in the number of beds needed for the existing population because of the decrease in the bed ratio is sufficient to offset requirements of the immigrant population. Thereafter, needs expand in proportion to the growth of the population. A similar trend may be observed for mental illness and mental deficiency beds, although in the latter case there is no offsetting reduction in the needs of the present population during the period 1971-1976. In contrast, for maternity beds and geriatric beds, where changes in the structure of the population are of greater importance, it is between 1971 and 1976 that need grows most rapidly.

The next step is to relate these estimated needs to the present provision and the future plans of the Hospital Board.

### The Future

#### General Hospital Services

8.17. Before considering the proposals of the Western Regional Hospital Board, it is necessary to establish to what extent these plans are intended to cater for people living outside the Survey Area. It will be remembered that the 1961 population served by the hospitals concerned exceeded that of the Survey Area by some 10 thousand. At present, the only change in catchment area envisaged is an adjustment in the south-west when the new hospital at Cumbernauld is built. This hospital will work in conjunction with the new district hospital at Airdrie (500-700 beds), listed in the Review of the Hospital Plan among schemes it is hoped to start in the next five years.<sup>(1)</sup> The Eastern No. 3 District of Stirlingshire will remain within the Falkirk catchment area, and its population (eight thousand in 1961) should therefore be included when assessing the adequacy of hospital provision. To be consistent a corresponding deduction ought to be made for people living within the Survey Area, in Denny, but looking to Stirling for their hospital services. This has not been done.

#### Present proposals

8.18. The key to the Board's plan for general hospital services is concentration on an expanded and upgraded Falkirk Royal Infirmary. The

<sup>(1)</sup> Scottish Home and Health Department, *Review of the Hospital Plan for Scotland*, op. cit., p.13.

TABLE B.4  
Estimated numbers of beds required by the projected present population and by the projected immigrant population, 1971, 1976, 1981 and 1986

Type of bed:	1971				1976				1981				1986			
	Existing Population (1)			Immigrants	Existing Population Projection			Immigrants	Existing Population Projection			Immigrants	Existing Population Projection			Immigrants
	II	IIA	IIB		II	IIA	IIB		II	IIA	IIB		II	IIA	IIB	
Total population (thousands)	133	133	130	—	142	140	138	18	152	149	148	38	163	159	159	60
Acute	479	478	468	—	475	421	415	54	456	448	444	115	449	476	476	101
Maternity <sup>a)</sup>	102	98	89	2	114	106	111	21	124	113	121	38	136	127	130	52
Geriatric	210	210	205	—	240	240	236	9	260	260	258	20	269	269	268	32
Mental Illness	427	426	417	—	502	389	383	50	420	413	410	100	432	449	448	357
Mental Deteriority	197	196	192	—	210	209	203	27	225	221	219	57	241	235	235	69

Source: See text.

(1) For a detailed description of the population projections see Chapter 3. All three projections for the present population assume falling death rates and rising birth rates, and in addition Projection II assumes rising marriage rates and no net migration.

Projection IIA assumes constant marriage rates but no net migration.

Projection IIB also assumes rising marriage rates but that net migration will continue.

Immigrant population: The growth model for the immigrant population is based on assumptions equivalent to those for Projection II of the existing population. It also assumes a constant flow of immigration beginning in 1971.

(2) The number of maternity was calculated by adjusting the number of live births given by each population projection to allow for still births and multiple births. The projection of still births per thousand live births has fallen steadily since before the war. It was assumed that this trend would continue until 1981 with a further slight reduction, to 30 per thousand, in 1986. It was also assumed that there would be 11.2 multiple conceptions per thousand births (five and a half).

TABLE 8.5

*Changes<sup>(1)</sup> in bed requirements in each quinquennium, 1971-1985,  
distinguishing the needs of the present and the proposed immigrant populations*

Type of bed	1971-1975			1975-1981			1981-1985			1971-85 Net Increase
	Present <sup>(2)</sup>	Immigrant	Both	Present	Immigrant	Both	Present	Immigrant	Both	
Acute . . . . .	-54	54	—	31	63	92	33	66	99	191
Maternity . . . . .	12	19	31	10	17	27	12	14	26	84
Geriatric . . . . .	30	9	39	20	11	31	9	12	21	91
Mental Illness . . . . .	-35	50	15	28	56	84	32	61	93	192
Mental Deficiency . . . . .	13	27	40	15	30	45	16	32	48	133

*Source:* Derived from Table 8.4.

<sup>(1)</sup> Decrease indicated thus: —

<sup>(2)</sup> Projection II, see Table 8.4.

Royal Infirmary was built during the early 1930s and is thus comparatively modern. During 1966 a new ward unit of 120 beds<sup>(1)</sup> with four operating theatres was completed. A new kitchen, dining-room, pharmacy and stores, under construction at the beginning of this Survey, are now in use, and additional accommodation for nursing staff is almost ready. Among present plans is a scheme for new out-patient, accident and emergency and X-ray departments. Work on this scheme was originally scheduled to start in 1966 with completion in 1968 but, at the time of writing, no progress had been made. On completion of the scheme the existing out-patient department will be converted into a physiotherapy department. Under the original timetable this would have come into use during 1969.

A starting date has still to be fixed for the maternity unit of approximately 116 beds planned to replace the existing 62 obstetric beds, but it is expected to be included in the building programme for the quinquennium 1969/70 to 1973/74.

Other schemes, which have yet to be included in a building programme, would provide accommodation for 340 geriatric patients, new ward blocks to replace and extend existing acute accommodation and an extension to the pathology department and mortuary.

No major schemes are planned for any of the other hospitals. The intention is rather to close them as the various projects at the Royal Infirmary mature. Denny and Dunipace Cottage Hospital is now about to close, with the completion of the new ward unit at the Royal Infirmary. Similarly, the Windsor Hospital, dating from 1895 and now providing chronic and Part III accommodation, would be replaced by the proposed geriatric unit. The Infectious Diseases Hospital is only a few years younger than the Windsor Hospital, and the length of its future life is obviously dependent on the pace at which new facilities can be provided elsewhere.

8.19. The effect of these proposals is summarized in Table 8.6 below, which shows the estimated number and distribution of beds by hospital and speciality in 1975. It assumes that the new maternity unit at Falkirk Royal Infir-

mary will have been built, but not the geriatric unit.

The pattern of provision of specialities not available within the Survey Area will continue (see paragraph 8.7), with the exception that patients requiring neurosurgery will go to the new unit at the Southern General Hospital, Glasgow, and plastic surgery will also be available at Canniesburn Hospital, Glasgow. The figures in Table 8.6 also exclude the 27 beds at Bo'ness Hospital.

#### *Provision and need: a reconciliation*

8.20. In Table 8.7 the number of beds of each type which, under existing plans, will be available in 1975, is compared with the estimated number required, given the assumptions of this Report.

At first sight it seems to imply that present proposals will not be adequate to accommodate the planned immigrant population. But this interpretation requires some qualification. The arbitrary nature of the bed ratios should have been apparent from the earlier discussion. In the case of acute beds, where provision appears to be inadequate for even the present population in 1971, a balance would have been achieved with a ratio of 3.3 per thousand (instead of 3.6) in 1971 and of 2.8 per thousand (instead of 3.0) in 1976. But, on the other hand, the beds shown as available in both these years include 91 at the Infectious Diseases Hospital. It would seem that there is little prospect of closing this hospital without further, as yet unplanned, extensions at the Royal Infirmary.

The true extent of the shortage of geriatric accommodation, apparent even by 1971, is concealed in Table 8.7 by counting all the chronic beds at the Windsor Hospital as geriatric. But if the scheme for a geriatric unit at the Royal Infirmary could be realized, this would meet foreseeable needs up to 1985.

Our estimates of number of maternity beds seem to show a persistent shortage, but we have assumed that fertility rates will rise.<sup>(2)</sup> This assumption may well prove incorrect and our estimates too high. Further, we have assumed

<sup>(1)</sup> Not included in Table 8.1.

<sup>(2)</sup> See Chapter 3.

TABLE 8.6  
General hospital services: Proposed number of beds by  
hospital and specialty: 1975

	Falkirk and District Royal Infirmary	Falkirk Infectious Diseases Hospital	The Windsor Hospital	All Institutions
<i>Acute</i>				
General Medicine . . . . .	66	28	—	94
Dermatology . . . . .	10	—	—	10
General Surgery . . . . .	108	—	—	108
Orthopaedics . . . . .	44	—	—	44
Gynaecology . . . . .	40	—	—	40
Ophthalmology, E.N.T. . . . .	32	—	—	32
Paediatrics . . . . .	36	—	—	36
Urology . . . . .	24	—	—	24
Tuberculosis . . . . .	—	42	—	42
Infectious Diseases . . . . .	—	21	—	21
All . . . . .	360	91	—	451
<i>Maternity</i> . . . . .	116	—	—	116
<i>Geriatric</i> . . . . .	38	—	145	183
All Beds . . . . .	514	91	145	750

Source: Western Regional Hospital Board.

TABLE 8.7  
Number of beds available compared with estimated needs

	Type of bed		
	Acute	Maternity	Geriatric
Existing 1966 <sup>(1)</sup> . . . . .	425 <sup>(4)</sup>	62	176
Proposed 1975 . . . . .	451	116	183
Estimated Need <sup>(2)</sup>			
1971			
Existing population <sup>(3)</sup>	499	102	210
Immigrant population	—	2	—
Both . . . . .	499	104	210
1976			
Existing population <sup>(3)</sup>	445	120	235
Immigrant population	54	21	9
Both . . . . .	499	141	262
1986			
Existing population <sup>(3)</sup>	509	142	262
Immigrant population	161	52	32
Both . . . . .	660	194	314

Source: See text, and Tables 8.4 and 8.6.

<sup>(1)</sup> Excluding Bo'ness Hospital.

<sup>(2)</sup> Population Projection II, see Table 8.4.

<sup>(3)</sup> The estimates given in Table 8.4 have been adjusted to allow for an assumed constant population of 6 thousand living within the hospital catchment area but outside the Survey Area.

The bed ratios assumed for this population were:—

Acute—2.5 per thousand giving 20 additional beds.

Maternity—0.68 per thousand giving 6 additional beds.

Geriatric—1.65 per thousand giving 13 additional beds.

<sup>(4)</sup> Denny and Dunipace Cottage Hospital.

a normal stay of ten days; however, on our calculations a stay of eight days would reduce the number of beds needed in 1976 from 141 to 118.<sup>(1)</sup> It is not suggested that such a reduction would be desirable, but it provides an illustration of the order of the adjustment in length of stay of normal cases which would be required if our estimates proved correct. Of course, the situation would not be quite as simple as that. Earlier discharge of the mother would simply transfer the burden of care to the domiciliary services, while within the hospital the more intensive use of beds would require increased provision of delivery rooms and ancillary equipment per bed.

However, given spare capacity elsewhere the obvious solution to a local shortage of the type under discussion is an adjustment of hospital catchment areas, by diverting patients living in peripheral locations to hospitals outside the Area.

8.21. Nevertheless, after suitable qualification, Table 8.7 does suggest that it will only be possible to meet the need for general hospital services up to 1976 by the continued use of outdated buildings. This, however, is scarcely a unique situation. Further, although for reasons already discussed the shortage of maternity beds may be illusory, should our forecasts prove correct the new maternity unit will be needed at the Royal Infirmary before 1971 if the standards of the Montgomery Committee are to be maintained.

After 1976 the planned population expansion will outstrip the general hospital services of the Area. Geriatric needs could be met by the execution of the scheme for the Royal Infirmary, and we would recommend that this scheme be included in a definite building programme. There would also seem to be a real need for more beds for acute illness both to replace the Infectious Diseases Hospital and to meet new demands. As for further maternity provision, the future is too unpredictable. The only sensible course is to keep the situation under constant review.

## Mental Hospital Services

### *Proposed developments*

#### (a) Mental Illness; Bellshyde.

8.22. The Hospital Board have initiated a six-phase development programme under which most of the existing accommodation will be replaced. The original building dates from 1864 and some hotted buildings are in use at present. Phase one of the development, accommodation for 360 patients and ten staff houses, is now in progress. The remaining phases have yet to be included in a building programme, but will provide a further 420 patient-places, together with a central kitchen, a central store, workshops, greenhouses, an amenities block, occupational therapy, physiotherapy and staff teaching rooms and workshops, and an administrative block with a dispensary, laboratory, mortuary and post-mortem facilities.

Since it is intended to reduce the number of beds to 1,000 by 1975, even if none of this building takes place, work in progress is sufficient

to give new accommodation to a third of the patients.

#### (b) Mental Deficiency; The Royal Scottish National Institution.

8.23. No major building schemes are planned here. Although the original building, now used by the Juvenile Hospital, was built in 1863, with later additions, a nursing pavilion and two villa wards were added in the late 1950s, and a further two villa wards (100 beds) and nursing pavilion (52 beds) are now under construction. The adult colony is comparatively recent, dating from 1928. A villa ward was added in 1959 and in 1963 one treatment ward and four more villa wards. The proposed increase in accommodation, to 1,450 in 1975, will be in the juvenile colony.

### *Provision and need*

8.24. The Survey Area forms only a small part of the catchment area of each of the mental hospitals, therefore a direct comparison of estimated needs, with the number of available beds, would be meaningless. The real problem is whether or not there are sufficient places to prevent a local patient being refused admission in favour of another patient in greater need from elsewhere.

For patients suffering from mental illness this is certainly not the case at present. "The supply of beds at Bellshyde is completely adequate to meet the needs of the area which it serves. As a result, there is never any need to refuse hospital admission to any patient who requires it, nor is there any pressure to discharge a patient early".<sup>(2)</sup> Whether this situation will continue it is difficult to say. Table 8.8 shows estimated future needs for beds for mental illness. It can be seen from the last column that the increase in need arises largely from the planned population expansion.

As some at least of the immigrant population will simply be moving from one part of the hospital catchment area to another, the Table probably overstates the likely increase in need. Should any pressure on accommodation develop, this would probably best be met by the provision of short stay units at general hospitals in the hospital catchment area but outside the Survey Area.

In the case of mental deficiency it is doubtful whether existing provision does meet all needs in the catchment area. It is intended to alleviate this situation by the provision of mental deficiency accommodation locally for Ayrshire, Dumfriesshire, Renfrewshire, Wigtownshire and Kirkcudbrightshire. But, as in the case of mental illness, it is probable that Table 8.8 exaggerates the future increase in need. Even if this is not the case, further extensions at the Royal National Institutions are unlikely. Informed opinion seems to have experienced a considerable change since the Committee on Mental Deficiency in Scotland was able to

<sup>(1)</sup> 29.4 beds per thousand maternities instead of 34.3.

<sup>(2)</sup> Western Regional Hospital Board, Regional Statistics Unit, Report No. 1, *Mental Illness Survey, Bellshyde Hospital*, September 1965.

TABLE 8.8

*Estimated requirements of beds for mental illness  
and for mental deficiency, 1971 to 1986, separately  
for the present and the planned immigrant populations*

	1971	1976	1981	1986	Increase 1971-1986
<i>Mental Illness</i>					
Existing population . . . . .	427	392	420	452	25
Immigrant population . . . . .	—	50	106	167	167
<b>Both . . . . .</b>	<b>427</b>	<b>442</b>	<b>526</b>	<b>619</b>	<b>192</b>
<i>Mental Deficiency</i>					
Existing population . . . . .	197	230	225	241	44
Immigrant population . . . . .	—	27	57	89	89
<b>Both . . . . .</b>	<b>197</b>	<b>257</b>	<b>282</b>	<b>330</b>	<b>133</b>

Source: Derived from Table 8.4.

write that "an institution with 1,000-1,500 beds would generally be preferable to a multiplicity of small ones".<sup>(1)</sup>

### Out-patients

§ 25. Discussion so far has been confined to in-patient care but, as Table 8.9 shows, the volume of out-patient work is growing steadily. Between 1960 and 1964 total out-patient attendances rose by 6.4 per cent and by 1964 averaged one-and-a-half attendances per head per annum for the entire population of Scotland.

Attendances at clinics for mental and psychoneurotic disorders rose even more rapidly during this period, by 32 per cent, although they still constituted only a small part of the total.

Table 8.10 gives out-patient attendances at hospitals within the Survey Area: not, it should be noted, the total number of attendances at out-patient clinics, because it does not include the work of sessions held at Local Authority Clinics by arrangement between the Regional

Hospital Board and the local authorities. For this reason, and also because of the different time periods covered, the rates of growth given in the two Tables are not strictly comparable.

It is also difficult to estimate attendances per head of the Survey Area population because little is known about the catchment areas of hospital out-patient departments. However, given this, and the incomplete coverage of the attendance data for the Survey Area, it seems that attendances per head are lower than the average for Scotland. This is to be expected, as the Falkirk Royal Infirmary will not be able to offer such a comprehensive range of out-patient treatments as the larger teaching hospitals. In 1964, out-patient attendances in specialities not provided within the Survey Area accounted for 2.5 per cent of all out-patient attendances in Scotland. If these are excluded, the average

(1) Committee on Mental Deficiency in Scotland, *op. cit.*, p.9, para. 24.

TABLE 8.9

*Total out-patient attendances and attendances per head of the  
population for the years ending 30th September, 1960 to 1964—Scotland*

	1960	1961	1962	1963 <sup>(1)</sup>	1964	Increase % 1960-1964
<b>1. Total number of out-patient attendances (thousands)</b>						
Other than mentally ill <sup>(2)</sup> . . . . .	7,206	7,218	7,508	7,443	7,681	6.6
Mentally ill . . . . .	81	96	96	104	107	32.3
<b>All . . . . .</b>	<b>7,287</b>	<b>7,315</b>	<b>7,607</b>	<b>7,547</b>	<b>7,788</b>	<b>6.9</b>
<b>2. Out-patient attendances per head of the total population . . . . .</b>	<b>1.41</b>	<b>1.43</b>	<b>1.43</b>	<b>1.45</b>	<b>1.50</b>	<b>—</b>

Source: 1. Scottish Home and Health Department, *Scottish Health Statistics*, *op. cit.*, for each year.

2. Total out-patient attendances, for years ending on September 30th (see part 1. of Table 8.9 above) divided by the Registrar General's estimated population as at June 30th in each year.

(1) Estimated from data for year ending 31st March, 1963, and for the six months ending 30th September, 1963.

(2) But including the mentally defective.



TABLE 8.10  
Number of out-patient attendances,  
years ending 31st March, 1962 and 1965

	1962	1965	Change %
Falkirk Royal Infirmary . . . . .	144,140	157,562	+9.3
Denny and Dunipace Hospital . . . . .	582	815	+39.4
Bo'ness Hospital . . . . .	12,813	12,464	-2.8
Bellshyre Hospital . . . . .	330	—	—
All . . . . .	157,825	170,842	+8.2

Source: Scottish Home and Health Department, *Analysis of the Rising Cost of Hospitals*, for the years ending 31st March, 1962 and 1965, Edinburgh, H.M.S.O., for each year.

number of attendances per head of population in Scotland is reduced to 1.45.

8.26. It is impossible to say whether the recent increase in out-patient attendances will continue without a proper understanding of its causes. In the absence of such knowledge it has been assumed that the need to be met by hospitals within the Survey Area will be given by an average of 1.45 attendances per head. This is an arbitrary assumption, intended to allow for some increase over the present level in the Survey Area but without reaching the rate currently prevailing in the whole of Scotland, since it was considered that there will always be some forms of treatment for which patients will have to travel to specialist clinics in Glasgow or Edinburgh.

The estimates of the need generated by the Survey Area population, obtained by applying the assumed ratio of attendances to the projected population, are given in Table 8.11.

TABLE 8.11  
Future out-patient attendances per annum,  
1971 to 1985 (thousands)

	1971	1976	1981	1985
Present population <sup>(1)</sup> . . . . .	190.9	305.4	220.0	236.5
Immigrant population . . . . .	—	28.1	55.4	87.6
Both . . . . .	190.9	331.5	275.4	324.1

Source: See text.

<sup>(1)</sup> Projection II, rising marriage and fertility rates. See Chapter 3, para. 3.25 ff.

Table 8.12 shows the increase in annual attendances which would arise during each five-year period on these assumptions. According to these calculations, by 1971 there will be an average of 71 more attendances on each weekday than during the period March 1964 to March 1965, with further increases to be expected. This pressure on the out-patient departments could be relieved by the development of the health centres and the Family Doctor Diagnostic Centre for Falkirk proposed

TABLE 8.12  
Increase in out-patient attendances per annum  
during each quinquennium, 1965 to 1986

	Increase (thousands)
1965-1971 . . . . .	22.1
1971-1976 . . . . .	28.6
1976-1981 . . . . .	43.9
1981-1986 . . . . .	48.7

Source: Derived from Tables 8.10 and 8.11.

in the following Section (see paragraphs 8.34 and 8.35).

However, present plans for the future development of the Falkirk Royal Infirmary include a new out-patient department (see paragraph 8.18), and it is to be hoped that these plans will be reviewed in relation to the suggested future level of need and that their execution will not be further delayed.

#### Hospital Provision: a general comment

8.27. The preceding discussion of hospital provision has been conducted exclusively in terms of the number of beds. While the ratio of beds per head of population is a convenient way of quantifying need, its significance as an indicator of the standard of the service should not be exaggerated. It has been argued<sup>(1)</sup> that adequacy can be more readily judged from operating capacity and the waiting period for out-patient consultation, for in many cases a long period of waiting can make in-patient admission inevitable. This argument has obvious relevance here in so far as it suggests, firstly, that the impact of the present plans of the hospital boards cannot be judged solely by the additions made to the number of beds and, secondly, that implied future deficiencies in provision could be met by better equipment and more staff rather than an increase in the number of beds.

<sup>(1)</sup> Alan D. Airth and David J. Newell, *The Demand for Hospital Beds*, Newcastle-upon-Tyne, King's College, Department of Economics and Industrial Health, July, 1962, pp. 102 and 110.

## The Practitioner Services

### Introduction

8.28. The administration and general management of the National Health Service, Medical, Dental, Pharmaceutical and Supplementary Ophthalmic Service<sup>(1)</sup> (collectively the practitioner services) is the responsibility of local executive councils composed of members appointed by local practitioners,<sup>(2)</sup> the local health authorities and, in Scotland, by the Secretary of State. The members of each profession working within the practitioner services are not salaried employees but independent contractors whose terms of contract are negotiated nationally but administered locally by the executive councils.

The Survey Area is divided between two such bodies. The Executive Council for Stirling and Clackmannan administers the services for all the Area except that part in West Lothian which is within the purview of the Executive Council for the Lothians and Peebles.

### General Medical Practitioner Service

#### Introduction

8.29. The general medical practitioner occupies a key position within the present framework of the health service. It is assumed that, since the service is free, everyone will have a personal doctor who accepts a continuing responsibility for their well-being,<sup>(3)</sup> and that it is through him contact with the other branches of the health service will be made.

"The general practitioner is supposed to co-ordinate all the services provided, consultant, hospital, local authority, domiciliary, and so on, drawing on them as he interprets his patients' needs".<sup>(4)</sup> An exacting role! However, we cannot consider here how successfully it is being fulfilled or, indeed, whether fulfilment can reasonably be expected. Neither have we investigated the standard of premises or the extent to which Survey Area doctors employ nursing and secretarial help. Our interest has been in the much more limited problem of the number of doctors available.

#### The present

8.30. Since patients may register with any doctor, it is to be expected that some residents in the Area will be on the lists of doctors whose main practice is outwith the Area, and conversely. It seems that on balance the latter case is more common, for at the end of 1964 the total number of patients on the lists of the 33 doctors whose main surgeries were in the Area was over 130 thousand, considerably in excess of the total population. This gives an average list of 2,372 for the Survey Area, compared with an average of 2,013 for Scotland as a whole.<sup>(5)</sup> However, these figures include a certain amount of duplication, and the actual number of patients per principal is certainly less than this.<sup>(6)</sup> Nevertheless, the relatively larger number of patients per Survey Area general practitioner is also apparent from Table 8.13, which gives, for the Survey Area and Scotland, the percentage dis-

tribution of doctors and patients by the number of patients on the doctor's list. In both Scotland and the Survey Area the majority of doctors have lists of between 1,501 and 2,000, and most patients are on lists of this size,<sup>(7)</sup> but only four per cent of Survey Area doctors with two per cent of the patients, compared with 20 per cent of all Scottish principals with 11 per cent of the patients, have lists in the smallest size category, while the percentages of doctors with lists in the 2,501-3,000 range are 14 and 31 in Scotland and the Survey Area respectively. But, of course, these differences reflect different conditions of practice—most of the doctors with few patients will be working in sparsely populated rural areas, conditions scarcely found in the Survey Area. The maximum size of practice is fixed by regulation at 3,500 for a principal, but with the addition of a further 2,000 if a permanent assistant is employed. Since no assistants were employed in the Survey Area at the end of 1964, no doctors are shown in the largest size category in Table 8.13. For Scotland as a whole, the percentage of doctors with practices of over 3,600 patients fell between 1960 and 1964, but this would follow from the reduction in the ratio of assistants to principals in general practice between the two years.<sup>(8)</sup>

8.31. It will be seen from Table 8.14, which shows the distribution of doctors and patients by the number of principals in partnership together, that 22 per cent of Survey Area doctors were working alone and that these doctors have, on average, smaller lists. For Scotland, single-handed practitioners constituted 26 per cent of all principals providing unrestricted medical

<sup>(1)</sup> Arrangements for the Supplementary Ophthalmic Service are rather different, with the executive council acting as the agent of a Joint Ophthalmic Service Committee with responsibilities extending over a larger area than that of the executive council.

<sup>(2)</sup> These professional representatives are appointed by the local Medical, Dental, and Pharmaceutical Committees elected by the practitioners in each Area.

<sup>(3)</sup> This principle applies in the administration as well as the philosophy of the service. A patient registers with the doctor of his choice and the doctor receives a fixed fee for each patient on his list regardless of the amount of attention each may require. These capitation fees constitute the major part of the general practitioner's income.

<sup>(4)</sup> G. Foreyth and R. F. I. Logan, *The Demand for Medical Care*, Oxford University Press, London, 1960, p.195.

<sup>(5)</sup> Scottish Home and Health Department, *Health and Welfare Services in Scotland, Report for 1964*, Cmd. 2700, Edinburgh, H.M.S.O., 1965, p.47.

<sup>(6)</sup> The total population of Scotland at mid 1964 is divided by the number of principals in ordinary practice at that time giving an average of 1,370 persons per practitioner.

<sup>(7)</sup> Clustering in the range of 1,501-2,000 would be expected because of the leading payments, formerly payable for each person on the list between 501 and 1,500, but since 1961 payable for persons between 401 and 1,600 for single handed practitioners and 501-1,700 for doctors in partnership. In 1963 a further additional payment was introduced for patients between 1,001 and 1,500.

<sup>(8)</sup> In mid 1960 there were 2,038 principals and 188 assistants but in mid 1964 2,863 principals and only 117 assistants. (*Scottish Health Statistics, 1960 and 1964*, op. cit.).

TABLE 8.13

Distribution of doctors and patients by the size of the doctor's list, Survey Area and Scotland

	Number of patients on list					All areas
	1-1,500	1,501-2,500	2,501-3,000	3,001-4,000	4,001 or more	
<i>Principals with lists of each size</i>						
Scotland: 1960 . . . . .	26	55	13	6	2	100
1964 . . . . .	20	59	14	6	1	100
Survey Area: 1964 . . . . .	4	33	31	7	—	100
<i>Patients on lists of each size</i>						
Scotland: 1960 . . . . .	33	55	18	10	4	100
1964 . . . . .	11	59	19	9	2	100
Survey Area: 1964 . . . . .	2	53	36	9	—	100

Sources: Scottish Health Statistics, *op. cit.*, 1960 and 1964, and data supplied by the Executive Councils for Stirling and Clackmannan and for the Lothians and Perth.

Note: The size of practice for members of partnerships has been taken as the average for the partnership.

services, 35 per cent were in partnerships of two, compared with 51 per cent in the Survey Area, but 17 per cent were in partnerships of four or more principals, while the largest grouping in the Survey Area was of three.

TABLE 8.14

Percentage distribution of doctors and patients in the Survey Area by type of practice, showing the average number of patients per principal for each type

Type of practice	Percentage of		Average no. of patients
	Doctors	Patients	
Single handed . . . . .	22	20	2,106
Partnerships of:			
two . . . . .	51	52	2,423
three . . . . .	27	28	2,440
All . . . . .	100	100	2,372

Sources: Executive Councils for Stirling and Clackmannan and for the Lothians and Perth.

### The future

8.32. The population expansion envisaged in this Report will involve a considerable increase in the Area's requirements of general medical practitioners. There is no generally agreed optimum number of patients per principal in general practice. Indeed, a common view is that the notion has little meaning in the face of the wide variation in energy between individual doctors. However, it is generally agreed that limitation of the maximum number of patients is desirable. The Porritt Committee suggested that a maximum of 2,500 patients for an urban doctor and 2,000 for a country doctor would be ideal.<sup>(1)</sup> But it seems unlikely that there will be sufficient doctors for such a reduction from the present maximum of 3,500 to be achieved for some years. The estimates given in Table 8.15 therefore assume an average of 2,000 patients per doctor, that is, an average below the present level for the Area but above that for the whole of Scotland

(see paragraph 8.30). Further, they make no allowance for the fact that doctors with practices based in the Survey Area are at present caring for about seven thousand non-residents. If this geographical pattern of general practice persists, then the Table may underestimate requirements.

TABLE 8.15

Future requirements of general medical practitioners

	1971	1975	1981	1986
For the:				
Existing population <sup>(1)</sup> . . . . .	67	71	76	82
Immigrant population . . . . .	—	3	19	30
Both . . . . .	67	80	95	112
Increase over number five years before . . . . .	12	13	15	17

Sources: See text.

(1) Population Projection II, see Chapter 3.

8.33. The total number of principals in general practice in Scotland is falling, and it is expected that there will be a shortage of doctors for some years.<sup>(2)</sup> In these circumstances the Survey Area may have difficulty in attracting the necessary additional doctors. Executive councils can do nothing to induce doctors to come to their areas. There are special initial practice allowances payable to doctors building up a new practice in an area where an additional practice is required.<sup>(3)</sup> But these are available,

(1) Medical Services Review Committee, *A Review of the Medical Service in Great Britain*, Social Survey, London, 1962, p.33.

(2) See D. C. Feig and K. Jones, *op. cit.*, pp.436-441.

(3) Normally doctors are free to work where they choose but a doctor wishing to start a new National Health Service practice must obtain the consent of the appropriate Medical Practitioners Committee (there are two, one for Scotland and one for England and Wales). These Committees designate areas in which they consider additional doctors are needed.

of right, to all doctors in such circumstances in all parts of the country. Any action to make the Area attractive for general practice would necessarily take the form of providing facilities which would help doctors use their time more effectively and create an exciting working climate and would have to be taken by the local health authorities or the government.

8.34. This raises the issue of health centres.<sup>(1)</sup> The idea of the health centre at which all the practitioner and local health authority services would be provided in the same building played an important part in the original conception of the National Health Service. But in spite of their apparent advantages, both for doctors and patients, they have proved difficult to establish, expensive to equip and maintain and not always welcomed by local practitioners. This lack of enthusiasm arises from the practical difficulties which face a doctor in an established practice if he moves to a centre. Difficulties may not have been fully appreciated in the early days. A doctor's income depends directly on the number of patients on his list; thus, any alteration in the established pattern of practice not only involves financial uncertainty for the doctor immediately concerned, but may cause resentment among his professional colleagues.<sup>(2)</sup> Further, the earlier generation of doctors, possibly initially attracted by the independence of general practice, may have been unnecessarily fearful of a loss of freedom of action. In these circumstances it is scarcely surprising that health centres have been most successful in the fluid conditions of new towns and housing estates. But it is also possible that in planning earlier centres too much attention was paid to the centre as a working unit for the staff and too little to the distances which patients might reasonably be expected to travel—a planning oversight which is more likely to arise in relation to a centre in an established urban area than in a new development.

The Survey Area is not a "new town", but it is proposed to develop substantial new housing areas which would provide the type of location in which health centres have proved successful elsewhere, in particular at Bo'ness, Denny and Dunipace and Larbert. Further, the climate of practitioner opinion in Scotland is definitely moving in favour of health centres as a means of providing that integration of all parts of the health service which is essential if the needs of patients are to be fully met.<sup>(3)</sup> It is therefore suggested that discussions should be held between the Scottish Home and Health Department, the local health authorities and representatives of local practitioners on the possibility of providing health centres as the focal points of an integrated community health service and from which the required new general practices could be developed.

8.35. New housing development and redevelopment are also proposed for Falkirk itself. Here, however, to avoid disruption of existing practices, it would perhaps be preferable if the required increase in the number of practitioners could be accomplished through the expansion of group practice.<sup>(4)</sup> This would represent a

continuation of one of the most noticeable changes in the organization of general practice in recent years. Between 1954 and 1964 the percentage of doctors engaged in single-handed practice in Scotland fell from 40 to 26, while the percentage in groups of four or more increased from 7 to 17.<sup>(5)</sup> This development has been greatly encouraged by the method of payment which has enabled partners to be paid on the division of patients between them, which is financially most advantageous, and by the availability of interest-free loans for the acquisition of premises by doctors wishing to establish themselves in group practice.

Provided there is no radical change in the method of payment, a development of group practice of the type advocated here might be expected to occur naturally in the Falkirk area. Such groups would also benefit automatically from any national arrangements designed to further encourage group practice and the improvement of premises.

Thus, the promotion of group practice has the advantage of exploiting rather than trying to change the existing situation. Further, it will not require specific investment by either the local or central authorities, but will enable the Area to take full advantage of any finance available for the reorganization of general practice from national funds.

The Porritt Committee stated that "to a well organized group practice, with four or five doctors caring for about 8,000-10,000 patients, it should be possible to attach a health visitor, a home nurse and a midwife, and this we recommend should always be done".<sup>(6)</sup> It is to be hoped that the Executive Council will bear in mind the advantages to be gained in co-operation of the local health services with group practices of sufficient size when making decisions concerning the introduction of new doctors.

8.36. Another possibility which should be investigated is that of the establishment in Falkirk of a Family Doctor Diagnostic Centre,

<sup>(1)</sup> In Scotland health centres come directly under the control of the Secretary of State, not of the local authorities as in England and Wales.

<sup>(2)</sup> But see, Central Health Services Council, *Report of the Committee on General Practice Within the National Health Service*, London, H.M.S.O., 1954, para. 61-71, for a discussion of the difficulties facing a general practitioner.

<sup>(3)</sup> The *Glasgow Herald* of May 2nd, 1968, carried a report that the British Medical Association's General Medical Services Committee in Scotland had come out solidly in favour of family doctors practising from health centres.

<sup>(4)</sup> Group practice may be described as follows: "... the medical practice is carried on by several general practitioners working together in close association, consulting one another about their patients and doing their 'surgery work' in whole or in part in a common building controlled by the doctors." Central Health Services Council, *op. cit.*, para. 58. A group practice would also employ auxiliary help.

<sup>(5)</sup> *Scottish Health Statistics*, 1964, *op. cit.*, Section VI, Table 1. But these figures relate only to associations between principals. Between 1954 and 1964 the number of assistants fell from 257 to 117, while the total number of principals increased. It seems reasonable to conclude that, in some practices at least, the extra partner has replaced an assistant of former years.

<sup>(6)</sup> Medical Services Review Committee, *op. cit.*, p. 65.

providing general practitioners with the staff, accommodation and equipment for the examination and treatment of their more difficult cases.<sup>(1)</sup> By enabling the doctor to carry out more of his own diagnostic work and by promoting contacts between local practitioners,<sup>(2)</sup> the centre should help to create a stimulating atmosphere in the Area. But more complicated examinations and treatments take time and would reduce the number of patients a doctor could keep on his list. Under present arrangements this would involve loss of income, and some doctors might therefore be unwilling to use the facilities offered. Others, who have become accustomed to relying on the hospital services, might lack the confidence to do so. Without the support of local practitioners such a centre would be an expensive white elephant. It is advocated here as a means of enabling doctors to give their patients the best possible treatment while at the same time providing the means and the enthusiasm for the practitioner to keep up with new developments and, by widening the range of work undertaken by him, reducing the pressure on hospital out-patient departments. It is hoped that the establishment of such a centre would attract to the Area practitioners with the desire and ability to use it.

### The General Dental Practitioner Service The present situation

8.37. Unlike the medical practitioner, the dentist is not charged with a continuing concern for the general well-being of his patients. Patients are not required to register with a dentist, and a dentist, providing treatment in his own surgery, is paid, not by a capitation fee, but according to a nationally negotiated scale of fees per item of service. It is thus not possible to make comparison of numbers of patients per dentist, but only of dentists per head of the population, and this procedure can only give an approximate indication of the relative availability of dental care in different areas. For, in the first place, although Local Executive Councils maintain lists of dentists providing treatment under the Health Service, some dentists, particularly the elderly, may only be working part-time, while others, with exclusively private practices, will not be included at all. In the second place, local comparisons will be affected by the pattern of transport, since this will influence the location of dentists' surgeries and the patients' choice of dentist.

8.38. These qualifications should be borne in mind when comparing the following ratios of dentists providing general dental services in Scotland and in the Stirling and Clackmannan and Lothians and Peebles Executive Council Areas in 1964.<sup>(3)</sup>

Scotland . . . . .	1:4,940
Stirling and Clackmannan . . . . .	1:3,580
Lothians and Peebles . . . . .	1:5,220

In the Survey Area itself there were 24 dentists, including five assistants, in practice at the end of 1964, a ratio of approximately 1:5,170 of the total 1961 population. But, if the number of patients on doctors' lists for general medical

services represents the population of the catchment area for the practitioner services, then the ratio is nearer one dentist to every 5,400 people. As for the location of dentists' surgeries, 14 were in Falkirk and the rest distributed between the principal centres of population.

Such extremely low ratios of dentists to population reflect the shortage of dentists throughout the whole of Great Britain, a shortage of very long standing<sup>(4)</sup> which seems likely to persist, but not worsen, during the next decade.<sup>(5)</sup> However, the actual number of dentists does not seem to be the determining factor of the volume of work done. In Scotland between 1956 and 1965, when the number of principals and assistants actually fell by roughly five per cent (from 1,120 to 1,065), the number of courses of treatment completed increased by 32 per cent (from 1,269 thousand to 1,682 thousand).<sup>(6)</sup> This apparent anomaly may be attributed to the increase in the proportion of younger dentists, who generally have a higher output than their older colleagues; improved practice organization, with the more widespread use of ancillary staff; and modern operative techniques.<sup>(7)</sup> However, increases in product-

<sup>(1)</sup> A centre of this type was opened in Edinburgh in June, 1959. It has "five consulting rooms, provides facilities for X-ray, electro-cardiography, urology, haematology and some bacteriology and biochemistry. The services of an Honorary Adviser of consultant status and a part-time consultant radiologist are also available. The Medical Officer of Health has made available a medical social worker . . . for consultation at the Centre in appropriate cases." Scottish Home and Health Department, *Health and Welfare Services in Scotland, 1963*, Cmd. 2108, Edinburgh, H.M.S.O., 1964, p.56.

<sup>(2)</sup> The South East London General Practitioner Centre at Peckham has a common room large enough for meetings of up to 60 people, a journal stand and a small library. Lunch time and evening talks and discussions of all types are arranged periodically in the common room. (See Percut, *op. cit.*, p.60).

<sup>(3)</sup> Derived from *Scottish Health Statistics, 1964*, *op. cit.*, and the Annual Report of each Executive Council for the year 1963-64. The ratio for Scotland may only have been higher than this for it is based on the number of principals and assistants on Executive Council lists. In 1960 it was estimated that there were, in addition to the 1,060 principals and assistants on the lists, about 100 dentists providing general dental services as assistants to other dentists; these dentists would have raised the ratio in 1960 from 1:4,890 to 1:4,480 of the population. (First Report from the Estimates Committee, Session 1962-63, *Dental Services*, Memorandum submitted on behalf of the Secretary of State for Scotland, p.126).

<sup>(4)</sup> D. G. Paige and K. Jones conclude that there have never been sufficient qualified dentists. (See Paige and Jones, 1965, *op. cit.*, p.457).

<sup>(5)</sup> D. G. Paige and K. Jones, 1965, *op. cit.*, p.441.

<sup>(6)</sup> First Report of the Estimates Committee, Session 1962-63, *Dental Services*, Memorandum submitted on behalf of the Secretary of State for Scotland, *op. cit.*, p.126, and Scottish Home and Health Department, Report for 1965, *op. cit.*, p.55.

<sup>(7)</sup> Estimates Committee, Session 1962-63, *op. cit.*, Memorandum submitted on behalf of the Secretary of State for Scotland, p.126, para. 27. Appendix II to the Memorandum gives the age distribution of dentists for each year from 1935 to 1961. The percentage of dentists aged 50 and over fell from 43 per cent in 1956 to 33 per cent in 1961.

ivity of this type may alleviate, but are unlikely to overcome the shortage of manpower.

## IV

### Education

#### Introduction

#### *Future provision in the Survey Area*

8.39. No estimates of future requirements of dentists have been made, as it was not considered that these would be particularly helpful. But, as in the case of medical practitioners, the question arises as to what steps can be taken to make the Area attractive. Dentists are, of course, free to work wherever they choose and, as in the case of doctors, there is little that can be offered as an inducement. In other areas, Executive Councils have, on occasion, made arrangements with local authorities to provide premises for dentists and let them at economic rents.

For the Survey Area it is to be hoped that dentists will be persuaded to participate in the development of the health centres suggested in paragraph 8.34. But it must be admitted that health centres have not been greatly favoured by the dental profession in the past, partly because dentists working from them have had to do so on a salaried basis, whereas they would prefer to rent a surgery at a health centre and run their professional business from that address.<sup>(1)</sup> The Estimates Committee Report on Dental Services recommended that steps should be taken to enable dentists practising in health centres to work on a similar basis to dentists practising from their own premises. An arrangement of this sort has in fact been made with a dentist at the new health centre in Cumbernauld. It therefore appears that this particular obstacle to health centre practice has been overcome. But this is only a first step. Whether or not a dentist will be able to develop his practice to his satisfaction will depend on the management of the centre. This must be sufficiently flexible to permit the dentist and his staff to work the irregular hours which both dentists and patients find convenient.

#### *Supplementary Ophthalmic Service and the Pharmaceutical Service*

8.40. The Supplementary Ophthalmic Service provides for the testing of sight and the supply of spectacles only—anyone requiring treatment, or any of the more unusual types of spectacles or suffering from an abnormal condition of the eyes, will be referred to his doctor who will, if necessary, refer him to the Hospital Eye Service. A recommendation from their doctor is also necessary for people having their sight tested for the first time.

It is through the Pharmaceutical Service that the drugs, medicines and appliances prescribed under the Medical Practitioner Service are supplied.

Both the Ophthalmic and the Pharmaceutical branches of the Health Service are frequently provided as a subsidiary part of a retail business. It was therefore considered that discussion of the present and future number and distribution of such outlets would not be specially appropriate here.

8.41. Responsibility for the provision of educational services within the Survey Area is shared between two local educational authorities, the County Councils of Stirling and West Lothian. As education authorities, their powers and duties are many and varied and cover provision of all forms of primary, secondary and further education, nursery schools and classes, provision of special educational treatment for handicapped children, medical inspection and treatment of school children, the supply of school milk and meals and of clothing for pupils inadequately clad. Here it is proposed to concentrate on one part of these activities, the provision of primary and secondary education, and comment on the implications of the growing demand for further education.

Although this is not necessarily the case, the local education authorities in this Area can be regarded as the sole providers of primary and secondary schools. There are, at present, no direct grant or independent schools sited within the Area, and although some resident children do attend such schools outside the Area the numbers involved are not significant.

#### Primary and Secondary Education

##### *The system*

8.42. In Scotland the primary school provides a seven-year course for pupils aged from 5 to 12, transfer to a secondary school usually being made at between 11½ and 12½ years of age. Since 1939 all schools in Scotland providing post-primary education have been known as secondary schools and, until recently, could be roughly classified into two main types—the junior secondary for pupils intending to leave school at the school leaving age, and the senior secondary providing certificate courses. Scottish universities are more often prepared to accept students at 17 rather than at 18 years of age, as in England and Wales, and courses for intending students are correspondingly shorter in the Scottish secondary school. However, the variety of secondary schools was always much wider than this simple division between junior and senior would suggest, and two recent developments have served to complicate the situation still more. The introduction, in 1962, of an Ordinary level examination in the Scottish Certificate of Education<sup>(2)</sup> has enabled a growing number of schools to prepare pupils for

<sup>(1)</sup> Evidence from the British Dental Association Estimates Committee, Session 1962-63, *op. cit.*, Minutes of Evidence, 6th April, 1962, p.185, Questions 1469 to 1485.

<sup>(2)</sup> Until 1962 known as the Scottish Leaving Certificate. Subjects could be offered at the Lower or the Higher Grade. Under the new arrangements the Lower grade of the Leaving Certificate has been replaced by the Ordinary grade of the Certificate of Education, to be taken after four years at a lower standard. The Higher grade of the Certificate of Education is of an equivalent standard to the Higher grade of the Leaving Certificate and is also designed to be taken after a five year course, that is, at age seventeen.

the examination, while Circular 600<sup>(1)</sup> has obliged local education authorities to review their entire arrangements for secondary education with the ultimate aim of ending selection and segregation. It will thus be apparent that this Report is being written at a time when the organisation of secondary education in Scotland is undergoing a thorough reappraisal.

#### *Present provision: Stirlingshire*

8.43. For descriptive purposes it will be convenient to divide the Area within the county geographically, treating the district secondary school (or schools) and its (their) associated primary schools as one unit. There are four of these school districts—the Denny area, the Larbert area, Falkirk and Grangemouth. Roman Catholic schools provide a fifth grouping. All the secondary schools are listed in Table 8.15, which shows for each school its type, official capacity, the number of pupils enrolled and the date of construction of the buildings. Similar information is given for each grouping of primary schools in Tables 8.17 to 8.21.

8.44. The Denny area is served by one secondary school and eight primary schools. The Denny High School is a comprehensive school with a full five-year course and an intensive fourth year commercial course. However, sixth year pupils may transfer either to the Falkirk High School or the Stirling High School. For a comprehensive school it is comparatively small with an official capacity of only 800, although the number of pupils enrolled exceeds this. The school takes all the pupils from the primary schools shown in Table 8.17, with the addition of those from Muirhead Primary School, which is outwith the Survey Area.

In Table 8.17 the schools are arranged by year of construction and two interesting facts emerge. Firstly, unlike the High School, most of the primary schools have more places than pupils. Secondly, of the eight schools six, with 69 per cent of the places, were built before the First World War—indeed, two date from the

<sup>(1)</sup> Scottish Education Department, Circular No. 600, *Reorganisation of Secondary Education in Comprehensive Lines*, 27th October, 1965.

TABLE 8.15  
*Secondary schools in the Survey Area: Stirlingshire*

Name and type of school	Official capacity	Present Roll	Date of opening
Denny High School (Comprehensive Secondary, intensive IVth year commercial course)	800	907	1959
Larbert High School (Comprehensive Secondary, intensive IVth year commercial course)	970	1,066	Reconstructed and extended 1959
<i>Falkirk area:</i> Falkirk High School (Selective Senior Secondary)	860	1,037	1961
Grange High School (Optional Senior Secondary for the whole of Falkirk, Junior Secondary for South East Falkirk, intensive IVth year course)	1,470	1,329	1930's
Cruslan Secondary School (Three year Secondary with intensive IVth year technical course)	400	311	1961
Woodlands Secondary School (Three year Secondary with intensive IVth year technical course)	500	442	New or newly reconstructed 1964
<i>Grangemouth:</i> Grangemouth High School (Selective Senior Secondary)	500	551	New or newly reconstructed 1960
Murray Secondary School (Three year Secondary with intensive IVth year technical course)	600	480	1956
<i>Roman Catholic:</i> St. Mungo's, Falkirk (Three year Secondary, intensive IVth year technical course)	460	310	1950's
All	6,610	6,642	

Source: Stirling County Council.

TABLE 8.17  
*Primary schools in the Denny Area*

	Date of opening	Official capacity	Present roll
Dunipace . . . . .	1874	160	86
Denny . . . . .	1875	650	653
	extended		
	1885		
Greenhill . . . . .	1904	300	124
Dennyloanhead . . . . .	1906	260	115
Castlecary (Infants) . . . . .	1909	80	17
Broomhill . . . . .	1912	120	46
Bennybridge . . . . .	1952	450	356
Bankier . . . . .	1965	280	254
All . . . . .		2,360	1,649

Source: As Table 8.16.

19th century. While some 63 per cent of the pupils were enrolled at schools of not less than fifty years of age, the remainder attended schools built within the last five years. Apparently, no new schools were erected in this part of Stirlingshire between 1912 and 1952. This represents the extreme case of a situation which recurs throughout the Area.

8.45. *The Larbert area:* Arrangements here are very similar to those just described for Denny, with the Larbert High School, a comprehensive secondary school, taking all the pupils from six primary schools, all of which are

within the Area (see Table 8.18). Although the High School buildings were reconstructed and extended in 1959, the school is already overcrowded. It offers a full five-year course and an intensive fourth year commercial course, while potential university students may transfer to Falkirk High School for their sixth year.

The primary schools are somewhat younger than those at Denny. Two of the six were built within the last decade, one was reconstructed in

TABLE 8.18  
*Primary schools in the Larbert Area*

	Date of opening	Official capacity	Present roll
Carronshore . . . . .	1864 and 1902	440	254
Carron . . . . .	1900	370	308
Airth . . . . .	1908	200	177
	timber across		
	1923		
Larbert . . . . .	Larbert 1904	680	565
	Mach building 1950		
Sturthousmair . . . . .	1957	630	565
Bethconnar . . . . .	1961	60	54
All . . . . .		2,380	1,925

Source: As Table 8.16.

TABLE 8.19  
*Primary schools in Falkirk*

	Date of opening	Official capacity	Present roll
<i>Gowrie High School group:</i>			
Falkirk . . . . .	Before 1873	120	66
Laurieston . . . . .	1873-1902	530	533
Victoria . . . . .	1901	800	636
Westquarrier . . . . .	1944	680	560
Wallacestone . . . . .	1964	380	284
All . . . . .	—	2,490	1,579
<i>Camelon Secondary School group:</i>			
Camelon . . . . .	1902	800	692
Bantaskin . . . . .	1958	630	426
Easter Camelon . . . . .	1960	335	200
All . . . . .	—	1,765	1,318
<i>Woodlands Secondary School group:</i>			
Crookley Park . . . . .	1879-1907	800	507
Calderbank <sup>(1)</sup> . . . . .	1914	130	94
Bishopford . . . . .	1903	250	189
	Annexed 1958		
Langloan . . . . .	1959	630	602
Shieldhill . . . . .	1964	230	171
All . . . . .	—	2,010	1,633
All Falkirk primary schools . . . . .	—	6,175	4,630

Source: As Table 8.16.

(1) Reconstruction in progress.



1950, but the remaining three, with 42 per cent of the places and 40 per cent of the enrolled pupils, pre-date the First World War.

8.46. Falkirk has four secondary schools (see Table 8.16) of which two, the Falkirk High School and the Graeme High School, are senior secondary schools for the entire Falkirk area, pupils at the transfer stage being able to choose between them. But while the Falkirk High School is completely selective, the Graeme High School also takes non-certificate pupils. All three schools taking non-certificate pupils offer intensive fourth year courses. The number of pupils and the age of building for each school are given in Table 8.15.

Basic information concerning the thirteen primary schools in Falkirk is given in Table 8.19, with the schools grouped according to the secondary school to which they are zoned. Broadly speaking, primary schools in east Falkirk are zoned to the Graeme High School, those in the west to the Camelon Secondary School, while the Woodlands Secondary School takes pupils from the north/south traffic axis. Of the three groupings, the Graeme High School group has the highest proportion of pre-1914 primary school places, 60 per cent, compared with 45 per cent for the Camelon group, roughly 40 per cent for the Woodlands group and 44 per cent for all Falkirk primary schools.

Both the Graeme High School and the Woodlands Secondary School take pupils from primary schools located outside the Survey Area, the Drumbowie, Maddistoun and Whitcross Primary Schools and the Avenbridge, Limerigg and Slamannan Primary Schools respectively.

8.47. Grangemouth has two secondary schools, the Grangemouth High School and the Moray Secondary School. The High School is selective, taking all the certificate pupils from the burgh and a very few from outside. Children allocated to non-certificate courses go to the Moray Secondary School. Both schools send older pupils to Falkirk, the High School those pupils wishing to remain at school for a sixth year and the Moray Secondary School pupils wishing to attend certain fourth year intensive courses. As before, the age of the buildings and the sizes of the schools are given in Table 8.16. Grangemouth's five primary schools are listed by age in Table 8.20 below. Some 55 per cent of the places are in schools built before 1914, and 52 per cent of the primary school children attend these schools. The remaining places are in schools opened within the last seven years.

8.48. The Roman Catholic secondary school in the Area, St. Mungo's, Falkirk (see Table 8.16), is a junior high school offering a fourth year technical course. Pupils selected for certificate courses have to travel to St. Modan's High School, Stirling. Its feeding primary schools listed in Table 8.21 are all comparatively modern, none pre-dating the First World War but, also unlike the secular primary schools, three of the five schools have rolls in excess of their official capacity.

#### *Present provision: Stirlingshire—A summary*

8.49. From this description of the present

pattern of provision, it will be apparent that the Stirling County Council is already faced with the need for a major primary school replacement programme. This is a legacy of the past. The present schools were built to meet the needs of the growing population during the economic expansion of the late 19th century (see Chapter 2). In the inter-war years population growth did not require additional schools and economic depression prevented the replacement of those already in existence. The result is, as Table 8.22 shows, that more than half of both primary schools and places date from before the First World War and, of these, seven schools with about 3·7 thousand places were built before 1900. Since by 1985 the youngest of the pre-1914 schools will be at least seventy years old, it is to

TABLE 8.20  
*Primary schools in Grangemouth*

	Date of opening	Official capacity	Present roll
Zetland . . .	1874	320	129
George . . .	1895	990	901
Abbots Road . . .	1908	320	204
Bennetross . . .	1939	650	530
Dunelm . . .	1962	710	504
All . . .		2,990	2,375

Source: As Table 8.16.

TABLE 8.21  
*Roman Catholic primary schools*

	Date of opening	Official capacity	Present roll
Bonybridge . . .	1925	260	238
Deary St. Patrick's . . .	1934	415	452
Falkirk St. Andrew's . . .	Unknown	240	274
	Est. 1930s		
Falkirk St. Francis' . . .	1960	680	577
Grangemouth . . .	1962	585	551
All . . .		1,960	1,990

Source: As Table 8.16.

TABLE 8.22  
*Primary schools, other than Roman Catholic primary schools, showing the number of schools and places by the date of construction*

Date of construction	Number of schools	Places	
		(thousands)	%
Before 1904 . . .	10	7.56	54.4
1904-1914 . . .	1	0.68	4.9
1915 and later . . .	12	5.55	39.8
Under reconstruction . . .	1	0.12	0.9
All . . .	22	13.90	100.0

Source: Derived from Tables 8.17-8.23.

be hoped that they will be replaced before then. In fact, two of these schools are listed by the local education authority for reconstruction by 1970, eight more for reconstruction or replacement in the period 1970-1975 and the remainder for reconstruction or closure at some unspecified, but early, date.

8.50. In the case of the secondary schools the very success with which the County Council has executed its building programme may have created problems for the future in the form of new but unsuitable schools. For, in the first place, apart from the effects of any proposals made in this Report, the number of children now expected to be receiving secondary education is greater than was anticipated when the schools were planned. There are several reasons for this. The actual number of children born exceeded official expectations, while the proportion of children wishing to remain at school beyond the required minimum age is rising steadily—a trend which has been encouraged by the introduction of the Ordinary Level in the Scottish Certificate of Education and in Stirlingshire by the development of special fourth year courses for non-certificate pupils. In the educational year 1970-1971 the school leaving age itself is to be raised to sixteen.

The second set of problems derives from changes in educational policy—in particular the decision to introduce comprehensive schools. To be truly comprehensive, in the sense of being able to give each child an education suited to its age and aptitude, a school must be of a certain minimum size—not less than 1,250 pupils, and preferably larger. This is considerably larger than any of the secondary schools in the Area, with the sole exception of the Graeme High School, Falkirk (see Table 8.16). Since additional places will be required this would not matter if the schools could be enlarged but, unfortunately, in all but four cases,<sup>(1)</sup> this can only be done by encroaching upon already barely adequate playing fields. Falkirk itself is particularly badly placed.

#### *Present provision: West Lothian*

8.51. The part of West Lothian in the Survey Area contains the burgh of Bo'ness and the much smaller community of Blackness (estimated 1981 population approximately 1,000). The only secondary school is the Bo'ness Academy, a comprehensive secondary school, with a catchment area restricted to Bo'ness, from which it takes all non-Roman Catholic pupils of secondary school age. The existing school, which was built in about 1930 and further extended in the 1950s, has a capacity of about 1,000. Its present roll is less than this.

It is fed by the three Bo'ness primary schools, the Kinneil School, Bo'ness Public School and the Grange School. All three are two-stream schools (official capacity 600), but with fewer pupils than this actually enrolled.

The little community of Blackness has its own primary school, with a roll of 59 in September 1964. Children of secondary school age travel to Bathgate, not Bo'ness, because of the easier journey.

Roman Catholic pupils in Bo'ness have their own school with both primary and junior secondary departments, but senior secondary pupils have to travel to Bathgate.

The Roman Catholic population of Blackness is too small to support a primary school of its own and pupils either travel to Linlithgow or attend the Blackness Primary School, as their parents wish. Secondary pupils travel to Linlithgow.

#### *The future primary and secondary school populations*

8.52. The projection of future school populations for comparatively small areas is a hazardous procedure,<sup>(2)</sup> and therefore the estimates given in this section should be regarded as illustrations of what might be expected given the conditions specified rather than as predictions of the future. They were calculated by applying estimates of the percentage at each age who would be attending school to the population projections described in Chapter 3. The results will be presented separately for the present population of the Survey Area and the proposed immigrant population.

8.53. By 1971 the ages of compulsory education will be from 5-15 years, and it may therefore be assumed that 99.5 per cent of the children of these ages will be attending school. For young people aged 16 and 17 the situation is rather more complex. While there is no doubt that the proportion staying at school has risen steadily in recent years, and no lack of plausible explanations for this development,<sup>(3)</sup> the assessment of the size of the probable future trend, and its application to a local situation, raises serious problems which cannot be resolved here. The percentages of 16 and 17 year-olds at school given in Table 8.23 below are those of the Lothians Report.<sup>(4)</sup> For age 16 they assume an annual increase in the percentage remaining at school of one per cent of the age group. The estimates for age 17 were derived from the

TABLE 8.23

*The school population aged 16 and 17 as a percentage of the total age group—1971-86*

	1971	1975	1981	1986
Age 16	23.4	24.4	29.4	44.4
Age 17	17.9	21.0	23.2	25.0

Source: See text.

(1) St. Mungo's R.C., Denny High School, Larbert High School, Grange High School.

(2) "The problems of preparing enrolment projections for States and smaller geographic areas, however, are substantially more difficult than those encountered when making projections for the nation as a whole. The question of future migration into or out of a particular area is perhaps the most difficult to resolve." Meyer Zittler, 'Forecasting School Enrolment for the United States and Local Areas', *The Journal of Teacher Education*, Vol. V, March, 1964, p.60.

(3) J. Valery and R. Knight, 'Education', *The British Economy in 1975*, Ed. W. Beckerman, op. cit., chapter XIV, p.475.

(4) *The Lothians Regional Survey and Plan*, H.M.S.O., Edinburgh, 1966, Vol. I, p.42.

Robbins Report and assume that the percentage of the age group remaining at school will continue to increase but at a diminishing rate.

*Projection of the educational needs of the present population of the Survey Area*

8.34. Table 8.24 shows the number of primary and secondary school places which would be required for the present population of the Survey Area in 1971 and 1986 given the assumptions of paragraph 8.33 and those on which the population projections are based. These estimates are necessarily rather crude. In reality, there will be some four-year-olds in primary schools and some 18- and 19-year-olds in secondary schools, a factor for which no allowance has been made. Similarly, the division between primary and secondary school is less clear cut than these calculations assume. Further, for any group of children approaching or above the school leaving age the percentage still at school will tend to fall during the school year. The percentages attending school used here were derived from data for mid-January, but the percentage of the same group of children at school in the previous September would have been higher, while for children just starting school the proportion of a group of children aged five in January who were going to school would have been lower the September before. Since the number of places needed is determined by the maximum roll, which for the older pupils of secondary schools is the number at the beginning of the school year, these calculations may tend to underestimate requirements.

8.35. Estimated school populations have been given on the basis of each projection, because it is in the differences in the future numbers of births, and thus in the population of school age,

that the effects of varying the assumptions governing each projection are most apparent. However, for 1971 only the school population aged nine and under is derived from projected births; children aged ten and over were already born in 1961, the base year of the projection. Thus, in that year, the size and age distribution of the secondary school population is much the same for each projection, but the size of the primary school population varies from nearly 15 thousand (Projection I) to 16.3 thousand (Projection II). By 1986, when the entire school population is based on projected future births, the estimates of the number of primary school places needed range from 17.2 thousand (Projection I) to 23.1 thousand (Projection II), and of secondary school places from nearly 11 thousand (Projection I) to 13.7 thousand (Projection II).

While the growth of the school population aged 5 to 15 inclusive is due entirely to the projected increase in the number of children, part of the increase in the number of children aged over 15 and still at school is due to the assumed increase in the percentage at these older ages remaining at school. This increase will be proportionately the same for each projection.

8.36. A rough guide to the timing of the increase in the number of children is afforded by Table 8.25, which gives indexes of growth of the primary and secondary school populations for three of the projections, each taking the present total primary or secondary school roll, as appropriate, as 100. As might be expected, all three projections show a more rapid increase in the secondary than in the primary school populations.

What growth of the order indicated in Table

TABLE 8.24  
*Number of primary and secondary school places required by the present population of the Survey Area, 1971 and 1986*

		thousands				
		Primary	Secondary			
		Children aged 5-11, inclusive	Children aged			All Secondary
			12-15	16	17	
Projection I (Birth and death rates constant at 1961 levels)	1971	14.96	8.15	0.57	0.34	9.05
	1986	17.28	9.42	1.00	0.57	10.99
Projection II (Rising marriage and birth rates and falling death rates)	1971	16.31	8.31	0.57	0.34	9.22
	1986	25.14	11.63	1.20	0.67	13.70
Projection IIA (Rising birth rates but marriage rates held constant at 1961 levels. Deaths as Projection II)	1971	16.30	8.31	0.57	0.34	9.22
	1986	21.46	11.23	1.17	0.66	13.11
Projection IIB (Birth, death and marriage rates as Projection II, but allowance made for some migration by the present population)	1971	15.41	8.32	0.57	0.35	9.24
	1986	22.49	11.53	1.11	0.63	13.12

Source: See text.

Note: The projections were made for five yearly age groups. The division between the primary and secondary school populations and the estimates of the number of 16 and 17 year olds at school were made by assuming that the number of children at each age, within each five yearly age group, equalled one-fifth of the age group total.

**TABLE 8.25**  
*Indexes of growth of the primary and secondary school populations*  
*Present population of the Survey Area, 1964-1986.*

	<i>Projection I</i>	<i>Projection II</i>	<i>Projection III</i>
<i>Primary school population</i> (Primary school roll 1964=100)			
1971 . . . . .	105	114	108
1976 . . . . .	109	128	119
1981 . . . . .	116	145	130
1986 . . . . .	121	162	156
<i>Secondary school population</i> (Secondary school roll 1964=100)			
1971 . . . . .	119	122	122
1976 . . . . .	126	139	132
1981 . . . . .	135	156	147
1986 . . . . .	145	181	175

*Source: See text.*

8.25 means in absolute terms can be seen from Table 8.26, which sets out the increase in the number of pupils to be expected in each five-year period. Given the assumptions of Projection II, an additional three or four large primary schools and one large secondary school would be needed in every five years to meet the needs of the present population of the Area alone. The prospect under Projection I is much less alarming.

*Projection of the educational needs of the immigrant population*

8.57. Estimates of the size of the school population implied by the proposed immigrant population (see Chapter 3) were prepared in the manner described for the present population. The results of the calculations are given in Table 8.27, while Table 8.28 shows the additional pupils to be expected in each quinquennium.

*Educational needs of the combined population*

8.58. Table 8.29 gives a gross estimate of the total school population of the Survey Area, at five-yearly intervals from 1971 to 1986, obtained by combining the estimated school populations derived from Projection II of the present population (see paragraph 8.55), and from the

proposed immigrant population (see paragraph 8.57).

*Present provision and future need*

8.59. After describing the present pattern of provision and preparing estimates of the future size of the school population, the next step is the translation of the increase in the school population into additional school places. This is done in Table 8.30, in which the number of school places in 1964 has been deducted from the estimated school population in 1971 to show how many more places will be needed by that year. For succeeding quinquennia the figures are the number of additional children derived from Table 8.29.

According to this calculation, sufficient places already exist within the Area to accommodate the increase of approximately two thousand in the primary school population by 1971, which would occur under the assumptions incorporated into Table 8.29. But this ignores the problem of location, young children cannot be expected to travel long distances to school, and the extreme age of the accommodation. Including the West Lothian primary schools, approximately 8½ thousand out of the total of 17.8 thousand existing primary school places date from before the First World War and ought to be replaced

**TABLE 8.26**  
*The increase in the school populations in each quinquennium*  
*Present population of the Survey Area, 1964-1986.*

	<i>Projection I</i>	<i>Projection II</i>	<i>Projection III</i>
<i>Primary school population</i> 1964-1971 . . . . .			
	0.70	2.05	1.15
1971-1976 . . . . .	0.64	1.64	1.58
1976-1981 . . . . .	0.88	2.38	2.63
1981-1986 . . . . .	0.79	2.51	2.47
<i>Secondary school population</i> 1964-1971 . . . . .			
	1.47	1.64	1.66
1971-1976 . . . . .	0.64	1.51	0.75
1976-1981 . . . . .	0.57	1.44	1.14
1981-1986 . . . . .	0.72	1.75	1.19

*Source: See text.*

TABLE 8.27

*The size and structure of the school population implied by the proposed immigrant population, 1976-1986*

	thousands		
Primary school population	1976 9.17	1981 7.28	1986 11.06
Secondary school population			
Aged 12-15	1.03	2.07	5.23
16	0.05	0.17	0.43
17	0.09	0.10	0.24
All	1.11	2.16	5.90

Source: See text.

TABLE 8.28

*The increase in the school population in each quinquennium. Proposed immigrant population, 1971-1986.*

	thousands	
	School population	
	Primary	Secondary
1971-1976	9.17	1.11
1976-1981	4.11	2.08
1981-1986	5.78	2.73

Source: Derived from Table 8.27.

TABLE 8.29

*The size and structure of the total school population of the Survey Area, 1971-1986*

	thousands			
Primary school population	1971 16.31	1976 21.42	1981 27.91	1986 34.25
Secondary school population				
Aged 12-15	8.81	10.87	13.32	17.08
16	0.57	0.79	1.13	1.62
17	0.36	0.48	0.65	0.92
All secondary	9.22	11.64	15.11	19.60

Source: See text.

TABLE 8.30

*The number of additional school places required in each quinquennium. Total Survey Area population, 1964-1986.*

	thousands	
	Primary places	Secondary places
1964-1971	0.51	1.51
1971-1976	3.30	2.42
1976-1981	8.49	3.58
1981-1986	6.29	4.98
1964-1986	16.57	11.69

Source: Derived from Table 8.23, and see text.

<sup>(1)</sup> An excess of 1,532.

by 1986. These, together with the additional places needed after 1971, give a building programme of roughly 25 thousand primary places in the next twenty years. It is clear that the task of replacement should be tackled as quickly as possible before the burden of additional provision generated by the proposed housing developments materialises.

It is fortunate that the Area's secondary schools are not also in need of replacement, since there is an immediate need for 1,500 extra places by 1971, the equivalent of a moderately sized comprehensive school, and thereafter the number of additional places needed in each quinquennium grows progressively.

Of course, the local education authorities are aware of these needs, but their ability to act is circumscribed by government policy, as interpreted by the Scottish Education Department and, in the case of secondary education in particular, they have been awaiting the outcome of the Regional Survey. However, extensions are planned for the Larbert High School and St. Mungo's Roman Catholic Secondary School, with some minor additions to the Falkirk and Denny High Schools. But at Falkirk the situation is sufficiently serious to warrant an additional secondary school, and this is under consideration. At Grangemouth, two new primary schools and a secondary school are planned to meet the requirements of the housing developments now in progress. A similar situation exists at Bo'ness, where an additional building for the Bo'ness Academy has already been approved in principle by the Scottish Education Department, and additional primary schools are being planned.

However, there are no developments nearing completion which would substantially alter the picture presented by Table 8.30.

#### Further Education

8.60. But it is important that any plans for the future provision of secondary education should take into consideration the growing demand for further education, particularly the requirements of young people who have just left school and whose needs are very similar to those of the older pupils in secondary school.

Further education here means the provision of courses of study, both full- and part-time, vocational, and cultural and recreational, for people who have left school and are not in higher education, that is, at a university or institution of similar standing. In Scotland, in the year 31st July, 1964, to 31st July, 1965, there were some 327 thousand students enrolled in such courses;<sup>(1)</sup> their distribution by age and

<sup>(1)</sup> Further education in Scotland is provided by two types of institution—the further education centre administered by the local education authority, and central institutions with governing bodies independent of the local education authority. Broadly speaking, the former provide part-time courses and full-time vocational and first year apprenticeship courses for school leavers with not more than three or four years of secondary education, while the latter provide full-time courses leading to professional qualifications for pupils who have completed at least five years of secondary education. The great majority of students are enrolled at further education centres, 310 thousand out of the total of 327 thousand in 1964-1965.

type of course is given in Table 8.31. Only 16 thousand were full-time students. Of the 311 thousand attending part-time courses, 54 thousand were released by their employers during working hours; another 90 thousand attended vocational courses, but without day release, while the remaining 167 thousand attended non-vocational courses, mostly of a recreational nature.<sup>(1)</sup>

8.61. The realm of further education is a complex one and the future correspondingly difficult to foresee, but interest here may be restricted to the likely future demand for full-time and part-time study during the day, since it is provision for this which will require additional resources. In the case of full-time education there is a strong possibility that, with the diversification of courses for the older pupils of secondary schools, the recent increase in enrolments in further education establishments by young people aged 15 and 16 will tend to diminish. In 1964-65 approximately 6½ per cent of all 15-year-olds were full-time students in such establishments, where they comprised 34 per cent of all full-time students (see Table 8.31). It is not unreasonable to suppose that by 1971 all this age group will be enrolled in the secondary school system. The expansion of higher education might well have an equally inhibiting effect on full-time enrolment in further education at older ages. But this possible slowing down in the growth of demand for full-time courses of study should be more than offset by the much more predictable increase in provision required for part-time courses, which will arise from measures designed to continue the education of the non-academic school leaver.

There is some evidence that, for Scotland as a whole, unsatisfied demand already exists amongst this group. Table 8.32 shows the trend in enrolment in secondary and further education at age 16 and 17 years from 1960 to 1965. It can be seen that while the percentage in secondary education has risen steadily, the percentage in further education<sup>(2)</sup> is inversely related to the total number in the age group, suggesting that

enrolment is limited by the number of places available rather than by the number of potential students. But over the period, there has been an increase in the percentage on day release which may be expected to receive a further impetus from the implementation of the 1964 Industrial Training Act.<sup>(3)</sup> This will not only extend the number of occupations for which training is considered necessary, but will formalise many existing training schemes. Further, the Minister of Labour has announced that the grants which Industrial Training Boards may make to employers will normally only be available if day release is provided for young people in occupations requiring a substantial amount of training, that is, training lasting a year or more.<sup>(4)</sup> Also, the Secretary of State for Scotland has accepted the target of 100 thousand day release students by 1970 recommended by the Scottish Technical Education Council,<sup>(5)</sup> a target which almost doubles the number of day release students within the next five years—a more rapid rate of increase than was achieved in the last five. And, of course, there always remains the possibility that the provision of the 1945 Education Act, requiring compulsory attendance at a Junior College for one day each week by young people under 18 years of age,

<sup>(1)</sup> Handicraft and Hobbies—37 thousand

Needlecraft—35 thousand

Physical Training

(including Country Dancing)—37 thousand

(Scottish Education Department, *Education in Scotland* in 1965, Genrd. 1914, Edinburgh, H.M.S.O., 1966, p. 114).

<sup>(2)</sup> That is, the percentage enrolled in all forms of further education. Full-time and day release students are shown separately but it is not possible to separate vocational and non-vocational part-time enrolments before 1964. But in 1964-65 only 18 per cent of part-time enrolments by students aged 16 and 17 were for non-vocational courses (see Table 8.31).

<sup>(3)</sup> The Act applies to commercial as well as industrial occupations.

<sup>(4)</sup> Scottish Education Department, *Education in Scotland* in 1965, op. cit., p. 39.

<sup>(5)</sup> Scottish Education Department, op. cit., p. 46.

TABLE 8.31  
*Students enrolled in further education, by age and type of course, Scotland,  
year ended 31st July, 1965*

	Type of course				
	Full-time	Part-time			All types
		Day release	Vocational	Non-vocational	
Students born in 1949 or earlier <sup>(1)</sup>	5.4	5.6	9.2	8.6	28.8
1948 . . . . .	2.5	3.8	14.7	4.7	31.6
1947 . . . . .	1.3	12.4	14.1	6.8	34.6
1946-44 . . . . .	4.1	18.7	21.6	16.5	60.9
1943 or earlier . . . . .	2.8	9.7	30.6	130.5	173.6
All ages . . . . .	16.1	54.2	90.3	167.0	327.5

Source: Scottish Education Department, *Education in Scotland* in 1965, op. cit., p. 110

<sup>(1)</sup> All children born in 1949 would have had their fifteenth birthdays by January 1st, 1965, but while some would be just 15 others would be about to have their sixteenth birthday.

TABLE 8.32  
Percentage of 16- and 17-year-olds in secondary  
and further education, Scotland, 1960-1965

	Year					
	1960	1961	1962	1963	1964	1965 <sup>(1)</sup>
<b>Age 16</b>						
Estimated total in age group (thousands)	79.0	79.0	71.2	69.9	97.3	67.1
Percentage in:—						
Secondary education	18.1	18.6	19.5	20.4	22.2	23.5
Further education	36.7	37.2	37.9	36.8	33.4	36.8
Full-time	2.1	2.0	2.1	2.5	2.5	2.8
Day release	8.1	9.2	10.7	10.9	10.0	11.2
<b>Age 17</b>						
Estimated total in age group (thousands)	75.7	78.5	77.5	72.6	60.4	56.7
Percentage in:—						
Secondary education	11.0	11.7	12.4	12.4	13.0	15.6
Further education	35.1	34.0	36.1	36.7	36.2	35.7
Full-time	1.5	1.4	1.6	1.5	1.4	1.4
Day release	9.6	9.7	11.2	12.1	12.9	13.6

Sources: Derived from Scottish Education Department, *Education in Scotland*, for each year, Statistical Tables.

<sup>(1)</sup> Figures for 1965 exclude the former Royal College of Science and Technology and the Scottish College of Commerce, now the University of Strathclyde.

might be brought into operation by 1966. If this should happen then facilities would have to be provided for the part-time education of all 16- and 17-year-olds not in full-time education.

Given the assumed population expansion of Projection II and the planned immigrant population, day release on one day each week for half the 16- and 17-year-olds in the Area in 1971 would be the equivalent of 400 full-time students. If the proportion of 17-year-olds in day release is increased to 75 per cent by 1966 (on our assumptions the rest are still at school, see Table 8.25), then with the same population assumptions, requirements for young people under 18 would be the equivalent of 900 full-time places.

Developments in part-time further education at older ages are more uncertain. Some degrees and diplomas at present obtained by part-time study will, with the Robbins expansion of higher education, be provided for by full-time courses. But, on the other hand, there may be an increase in the number of people wishing to study for semi-professional and trade qualifications and, in an age of rapid technological change, in the demand for courses designed to keep the qualified abreast of new discoveries.

8.62. However, it is not intended to produce estimates of future numbers of places needed in further education. This will in any event depend on the future industrial and commercial structure of the Area. But if the Area is to be an industrial centre, then it must also be a centre for industrial training catering for a large number of students in a wide variety of courses. There already exists in the Falkirk Technical College a new and well-equipped centre upon which to build. We have already said that considerable expansion is needed in the provision for secondary education in the Area, and that in keeping with present policy this will

probably take the form of larger comprehensive schools. Since both further and secondary education are a local education authority responsibility, an opportunity thus arises for the development of first year further education courses in conjunction with the courses for older pupils at comprehensive schools—an arrangement which would provide a link between work and school and prevent unnecessary duplication of premises, equipment and staff.

#### Concluding Remarks

8.63. An estimation of future educational requirements should be concerned with at least two topics—the number of children for whom provision must be made, and the organization of that provision into schools. Here, attention has been concentrated on the former but, even so, the piece of information most needed for future planning—the yearly intake into each school—cannot be provided. The reason for this is that the build up of a school population depends on the housing programme and its execution, the structure of the immigrant population and demographic changes amongst the present population—all factors on which sufficiently refined information cannot be available at this stage. The second topic applies to secondary rather than primary education. The recent circular on comprehensive education has limited the range of possibilities, but there are still many forms of comprehensive schools from which to choose. No recommendations have been made because this is the province of the educational expert where comment would be foolhardy. But whatever plans are formulated, it is an inescapable fact that their implementation will depend on factors beyond local control—the supply of teachers, of building materials, and government policy concerning social investment in general.

## Local Authority Health and Welfare Services

### Introduction

8.64. In the introduction to this Chapter reference was made to the tripartite organisation of the health service. Regional Hospital Board and Executive Council services have already been described. This Section will comment briefly on the role of the local authority health services.<sup>(1)</sup> Broadly speaking, these are directed towards the prevention of illness and the provision of domiciliary care and after-care. But ill-health and its consequences raise social as well as medical problems, and it will therefore be convenient to include local authority welfare services in the discussion.

### The range of services

8.65. The principal services provided are listed below but, of course, the actual services available will vary from one authority to another, and therefore the headings do little more than indicate broad spheres of activity.

*Maternity and child welfare services* cover the care of expectant and nursing mothers and advice and general supervision for them and for children under five years of age and not attending school. These services are generally based on clinics which mothers, prospective and actual, are encouraged to attend. The local health authorities also provide a complete *midwifery service* for women who are confined at home. Provision of *day and residential nurseries* for children below school age is also a local health authority function; nursery schools and classes, however, are a local education authority responsibility.

The *Home Nursing Service* cares for the sick in their own homes. It may be staffed by nurses employed by the local authority or by a voluntary association acting as agents of the local authority. *Health visitors* also visit people at home, to advise on the care of young children and on health problems in general. Although initially developed to provide expert guidance to the mothers of very young children, the service is becoming more generalized, with the problems of the elderly growing in significance.

Local health authorities have the power to provide *domestic help* in households where it is needed as a result of illness, confinement, or the presence of children or old people. This service is not necessarily free; the authority may charge the beneficiaries whatever proportion of the cost it feels they can afford.<sup>(2)</sup>

Arrangements for *vaccination and immunization* initially covered only vaccination against small-pox and immunization against diphtheria, but this service has now been extended to immunization against whooping cough, tetanus, poliomyelitis and tuberculosis. Local health authorities are also becoming increasingly active in the field of *health education*.

8.66. Local authority services for the *mentally disordered* are less well developed. The 1960 Mental Health Act, to which reference has already been made, emphasized the importance

of community care and envisaged that it would be provided by the development of the local authority mental health services. But, in spite of this, the effect of the Act was not to confer new powers but "to re-enact certain duties and powers which local authorities have hitherto exercised under the Mental Deficiency and Lunacy (Scotland) Acts, which are to be repealed by the new Act, and to remove certain existing statutory restrictions in order to give local authorities freedom to provide services for the mentally disordered under health, welfare, education or children powers as may be most convenient".<sup>(3)</sup>

Under the Act local health authorities have explicit power to *provide residential accommodation* for the mentally disordered, either directly or by arrangement with another authority or a voluntary organization. It is their duty to *ascertain the presence of mental deficiency* in any person, not of school age, in their area. Ascertainment is an entirely informal process and involves the local authority in seeking out all those persons who would benefit from the services they can provide, not, as previously, only those for whom compulsory action was required. The local authority has then the duty of providing for the *occupation and training* of children under the age of 16 whom the local education authority consider unable to benefit from attendance at a special school<sup>(4)</sup> and of all mental defectives over the age of 16. It is also responsible for the *supervision* of those mentally defective persons living in the community who are not subject to compulsory powers, and has duties of *supervision and visitation* in respect of those admitted to *formal guardianship*.

8.67. Under the 1960 Act the duty of local authorities to make arrangements to promote the *welfare of the mentally disordered* is identical with their duty to assist other categories of *handicapped persons*. The National Assistance Act of 1948 gave local authorities power, since converted into a statutory obligation, to make such provision in respect of persons who are blind, deaf or dumb, and other persons who are substantially and permanently handicapped by illness, injury or congenital deformity, or such other disabilities as may be prescribed by the Minister.<sup>(5)</sup>

(1) As distinct from services provided by local authorities as Public Health Authorities in relation to such matters as housing, sewerage, water supply.

(2) All three health authorities in the Survey Area (see paragraph 8.68) provide a home help service. It is interesting to note that in his Annual Report for the year 1962 the Medical Officer of Health for Shropshire comments that "the Service is used chiefly by the aged, and for long term illness, but is little used for maternity, or for short term illness, allegedly because of the cost."

(3) Department of Health for Scotland, *Mental Health (Scotland) Act, 1960, Local Authority Services: Notes on Part II of the Act*, Edinburgh, H.M.S.O., 1961, p.3.

(4) Technically, Junior Occupation Centres are special schools and their provision a local education authority responsibility.

(5) Before the 1960 Act, although "disability" included mental disability, the limitation of the service to persons whose disability was such as to give rise to substantial and permanent handicap had, in practice, excluded most of the mentally ill.



However, the most important of the welfare services is the provision of residential accommodation for persons, mostly elderly, requiring care and attention.<sup>(1)</sup> But in keeping with the general movement away from institutional care, local authorities are being encouraged to provide services and accommodation which will enable the elderly to remain in a home of their own. Since 1962 they have been able to provide meals and recreation for elderly people directly instead of being restricted to contributing to the funds of the appropriate voluntary bodies, while the Housing Act, 1956, enables the local health authority to contribute to the cost of any welfare features incorporated into special housing provided by the housing authority for the elderly and handicapped.

#### Authorities in the Survey Area

8.68. In Scotland, Local Health and Local Welfare Authorities are the councils of counties and large burghs. There are thus three local authorities with responsibilities for the health and welfare services of the Survey Area—the County Councils of Stirling and West Lothian, and the large burgh of Falkirk. The two counties are also Local Education Authorities and, as such, responsible for the school health service.<sup>(2)</sup>

It will be apparent from the far from exhaustive list of health and welfare services for which local authorities are responsible that an adequate description of the services provided by the three authorities and the many voluntary bodies active in the Survey Area would require a separate report. Further, it would be of doubtful value for the purposes of this Survey. Description would be meaningless without some standards of comparison, and no suitable standards exist. In any case, it is quite difficult to obtain consistent statistics for consecutive years from one authority and, given the difference in administrative arrangements between authorities, almost impossible to be certain that any comparison between two authorities is, in fact, comparing like with like. The interpretation of the results of such an analysis would also be complicated by differences in the conditions in which local services operate. But apart from all these considerations, such a description would be of the past, whereas this Survey is oriented towards the future, and from this viewpoint the most important problems raised are of an administrative nature and will be discussed in the next Section.

### VI

#### The Organization of Health and Welfare Services in the Area

8.69. The problems of organization discussed in this Section are inherent in the present structure of the health services and are thus not peculiar to the Grangemouth/Falkirk Area, but the special status of the Area and the rapid expansion of these services which the development proposals require create both the opportunity and the need to reappraise the system.

There are basically two sets of problems arising respectively from the tripartite administration of the health service and from the fragmentation of the local authority services. The problems of general practice have been considered briefly elsewhere in this Chapter and may be regarded as a special case of the first group of problems now under consideration.

8.70. The disadvantages of the present administrative separation of the three main branches of the health service—the hospital service, the general practitioner services and the local authority health services—are well known and do not require repetition here.<sup>(3)</sup> The problem is not one of lack of liaison, but that liaison should be necessary. The division prevents the best use of resources, inhibits the development of the service, and can result in hardship to individual patients who are not clearly the responsibility of any branch. The requirements of each service are obviously dependent on the provision made by the others; for example, earlier discharge from hospital, with a consequent reduction in the number of hospital beds (but not staff and equipment) required, is only possible if a fully developed after-care service is available, yet planning decisions for each service are taken by independent bodies operating over different geographical areas. Thus, as far as the future planning of the health services is concerned, the difficulty is that present arrangements prevent the right questions being asked in the first place.

8.71. The solution to the problem, proposed by the Porritt Committee,<sup>(4)</sup> is the establishment of Area Health Boards which would be responsible for the administration and overall planning and development of all the medical and ancillary services in their area. This would include the local authority health services, but not their welfare functions. The Committee did not feel able to recommend a suitable size of area or population for an Area Health Board but suggested the introduction of experimental pilot schemes from which the information necessary to the proper implementation of the scheme might be derived. The proposal here is that the Grangemouth/Falkirk Area would be a suitable pilot area.

8.72. The establishment of an Area Health Board would place the services at present provided by the three local health authorities under one administration, which would be able to develop them as part of a comprehensive scheme embracing hospital and general practitioner services as well. But this leaves untouched the local authority welfare services, and it is here

<sup>(1)</sup> Residential homes for children, although a welfare service in the generally accepted sense, are provided under separate legislation.

<sup>(2)</sup> Falkirk Burgh Council, however, is not. But although the school health service within the Burgh is the responsibility of the Stirling County Council the day to day work is in fact carried out by the nursing and medical staff at the Burgh Health Department.

<sup>(3)</sup> See Medical Services Review Committee, (Porritt Committee), *A Review of the Medical Services in Great Britain*, p. vii, pp. 16-20.

<sup>(4)</sup> Porritt Committee, *op. cit.*, pp. 20-27.

that efficient organisation is vitally important, because it is only by using the trained personnel available as effectively as possible that these services will be able to expand at all. The two general obstacles to the efficient deployment of trained social workers are the small size of some local health authorities and the fact that the administrative divisions within the welfare services<sup>(1)</sup> provided by any one authority tend to derive from statutory rather than functional considerations. The recent White Paper, "Social Work and the Community",<sup>(2)</sup> concluded that "to provide better services and to develop them economically it seems necessary that the local authority services designed to provide community care and support, whether for children, the handicapped, the mentally and physically ill or the aged, should be brought within a single organization".<sup>(3)</sup> In other words, the transfer of the work of the existing welfare departments to a newly created Social Work Department which would also be responsible for residential estab-

lishments intended to provide personal care, support and rehabilitation.

This reorganization, of course, will apply to all local welfare authorities in Scotland and, with existing local administrative boundaries, would still leave the Survey Area divided between three Social Work Departments. But if the proposal to constitute the Area as a large burgh or city is accepted, then the welfare services would be the responsibility of a single body. Further, if all the health services could be entrusted to an Area Health Board, then the two departments would be able to create a service offering both effective help to all in need and satisfying working conditions for its staff.

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<sup>(1)</sup> In the commonly accepted sense.

<sup>(2)</sup> Scottish Education Department, Scottish Home and Health Department, *Social Work and the Community*, Cmd. 3065, H.M.S.O., Edinburgh, 1966.

<sup>(3)</sup> *Social Work and the Community*, op. cit., p.3, para. 10.

# Entertainment, Recreation and Community Life

A. C. HULLEY

9.1. It has been said that "The success of any town or community depends in a large measure on how people spend their leisure".<sup>(1)</sup> All too often large new housing estates have been planned with little or no regard for the social, cultural and recreational aspects of life, and the consequent boredom has led to problems of vandalism and the lack of a good "community feeling". With the trend towards a shorter working week, and thus an increased amount of leisure time for most people, the demand for entertainment, recreational and social facilities may be expected to increase, particularly in an area such as Grangemouth/Falkirk, which has been selected for large-scale population growth. Greater affluence is enabling people to spend more money on their hobbies and to develop new, and perhaps more sophisticated, tastes. As standards of housing, and industrial and commercial premises continue to improve, people expect standards of leisure amenities to rise also, thus adding to the demand for better, extended or new facilities. This attitude will perhaps be felt most in new town areas where everything else is new.

9.2. In recent years it has become more widely recognized that in the provision of such facilities as much careful planning and foresight is needed as for housing, industrial and commercial development. Thus, open spaces for recreation, community halls and places of entertainment, for example, must not be regarded as residual space users but should be considered as "positive elements" in development plans. Only when it is realized that the non-work activities are as much integral parts of the lives of people as their working hours, and when this realization is then put into practice by planners, will towns be attractive places in which to live. Unfortunately, a thriving social and cultural life cannot be wholly planned as can good housing—so much depends on the enthusiasm and enterprise of the people living in the community—but a framework of suitable premises and amenities can go a long way in the achievement of this. Throughout the country, experience in new towns and new development areas has emphasized the need for imaginative and well planned leisure facilities to be provided with the minimum delay as the town is being built. A widespread complaint that "there is nothing to do in the evenings"

cannot be lightly dismissed if many social problems are to be avoided. Considerable delays have handicapped the development of social activities in Basildon, Welwyn, Peterlee and East Kilbride, for example, and much dependence has had to be put on the use of church or school halls, which are often not very suitable. In some of the new housing estates in Glasgow, the desire to concentrate on rehousing people from the slums as quickly as possible resulted in a neglect of community facilities such as shops, halls, playing fields, cafes and public houses. With nowhere near-at-hand to spend their leisure and no recreation facilities to provide an outlet for the energy of young people especially, boredom, vandalism and lack of interest in the home environment have become widespread. Recent efforts to provide more in the way of social facilities have proved to be very successful. However, it is interesting to note that in Letchworth the absence of commercial entertainment facilities for a while tended to encourage the growth of voluntary organizations. But in such circumstances "ready-made" entertainment would eventually be demanded.

9.3. In general, it may be said that in the building of a new community "Houses should have first priority, of course, but there should not be too great a lag in providing those social, cultural and recreational facilities which add so much to the interest and pleasantness of life; otherwise some discontent is inevitable".<sup>(2)</sup>

9.4. A survey of the leisure time facilities in the Grangemouth/Falkirk Area revealed a wide range of activities—social and professional organizations, commercial entertainment, sports and other recreational activities, giving an overall impression of a thriving social life. Inevitably, some sections of the population, and some parts of the Area, are not so well catered for as others. Since interests change, demand over the next twenty years will decline for some activities and increase or develop for others. The purpose of this Chapter is to examine and assess the level and standard of provision, distribution and utilization of leisure time facilities at present and in the light of the proposed population increase and its distribution. It should be noted

<sup>(1)</sup> Sir F. Osborn and A. Whitrick, *The New Towns*, London, 1963, chap. 18, p.182.

<sup>(2)</sup> *Op. cit.*, *The New Towns*, chap. 24, p.302.

that the Grangemouth/Falkirk Area will not be a "new town" like Livingston, but will, by 1986, contain several new development areas of up to 40,000 people each and will be faced with problems peculiar to that type of development. Not least among these will be the problem of socially integrating the existing and new communities. To what extent will the newcomers use existing facilities and mix with present members of clubs, and to what extent will they form entirely new organizations amongst themselves, involving perhaps an unnecessary duplication of some premises? In Bracknell, where a new town was "grafted" on to an existing one, the two communities have successfully merged. There is no reason why this cannot be the case in the Grangemouth/Falkirk Area.

9.5. Leisure-time interests may be discussed in four main categories:

1. Commercial Entertainment.
2. Physical Recreation.
3. Community Life.
4. Libraries—an example of a specialized amenity which could be developed as a focal point of cultural and social life.

## II

### Commercial Entertainment

9.6. When considering the range and quality of entertainment facilities available to the population of the Grangemouth/Falkirk Area, the proximity of other large centres such as Glasgow and Edinburgh is an important factor to be borne in mind. The demands for many types of entertainment—theatre, music or film festivals, for example—need not therefore be satisfied wholly within the Area and, indeed, it is very unlikely that any urban area of its size—now or in 1986—would be able to cater for all tastes. Glasgow, Stirling and Edinburgh are only about 30 minutes' travelling distance from the centre of Falkirk and already attract people from the Area to their more specialized entertainment facilities. This type of "commuting" will undoubtedly grow in the next twenty years as inter-city motorways, higher car-ownership rates, faster rail services and greater affluence encourage mobility by reducing time-distances and by making travel easier and more comfortable. Larger potential "catchment" areas for audiences and participants may enable the minority interest and more lavish types of entertainments to develop and flourish in the larger cities at least. It is to be expected, therefore, that by 1986 people in the Grangemouth/Falkirk Area will be able to enjoy a greater range, and perhaps better quality, of entertainment provided outwith the Area. However, a population of more than 220,000 (by 1986) can and should be able to support many of the more general types of facilities, including cinemas, theatres, facilities for amateur productions, and certainly the localized amenities like cafes, public houses, hotels and commercial sports grounds. If possible, the Grangemouth/Falkirk Area should also share in the provision

of the more specialized facilities designed to serve more than a local population.

9.7. Commercial entertainment is normally provided by the private sector, and therefore the level and standard of provision in each part of the Area depends to a large extent on private enterprise. But planners can influence future development by making provision for particular types of facilities and by prohibiting development in certain areas. Local authorities, too, can help or hinder amateur companies by the extent to which they provide halls—theatres in town halls, for example—and subsidies.

9.8. At present there are seven cinemas in the Area and several others within short travelling distances—in Linlithgow, Stirling and elsewhere. Three of the seven are in Falkirk, one is in Larbert, one in Denny and two in Bo'ness. In recent years demand for cinema entertainment has been generally declining (Table 9.1), largely due to the strong competition from television and bingo. As a result, some cinemas in the Area have closed or have been converted into bingo halls. In one cinema in Larbert, one in Denny and one in Bo'ness, bingo is played on 2-4 days each week and films are shown on other days. As would be expected, peak audiences for films are on Saturday evenings and are comprised mainly of young people. But although decreasing in general, attendances were higher in 1965 than in 1964 in at least one cinema in the Area. This may be the result of maintained interest in the new films shown there, or due to cinema closures elsewhere, or a lack of alternative entertainment. Demand may also vary according to the comfort and decor of each cinema. With the uncertainty, and indeed pessimism, about the future prospects of this type of entertainment, it would be inadvisable to recommend that any new cinemas be built in the Area. However, provision should be made for a cinema in the new town centres, should future demand warrant it.

TABLE 9.1

*Admissions to cinemas in Great Britain in selected years from 1953-1965*

	Millions
1955 . . .	1,285
1956 . . .	1,101
1959 . . .	601
1962 . . .	421
1965 . . .	322

*Source: Board of Trade.*

9.9. There are no commercial theatres in the Grangemouth/Falkirk Area. One amateur dramatic club has converted an old school into a small theatre for its own productions. Scottish National Orchestra concerts are held in Grangemouth Town Hall, and the New Town Hall in Falkirk, the Dobbie Hall in Larbert and Bo'ness Town Hall are also used for concerts, plays and opera, etc., by amateur groups. Use of these public halls will continue in future, but with a doubling of the population in the Area more

theatre facilities will be required. It is recommended that each town centre should have a theatre of some kind—even a stage in a hall. Provision for this could be made in centrally located community buildings. (More will be said about these in Section IV.) It would then be easily accessible, on main bus routes, and use could be made of car-parking facilities provided for day-time shoppers. Main productions, drawing the larger audiences, could be staged in Falkirk.

9.10. The only ballroom in the Area is in Falkirk, but teenage dances are held in the Dobbie Hall in Larbert, in Bo'ness Town Hall and in various clubs in Falkirk, Brightons and Bo'ness. In addition, well over a dozen hotels in the Grangemouth/Falkirk Area and surrounding district hold dinner-dances each week, and many are available for private functions. In view of the proposed rise in population in the Area, more dance facilities are recommended—to suit teenagers and adults. There is scope for both commercial and public provision in this sphere of entertainment.

9.11. As population in the Area increases, the demand for public houses will also increase. They provide a popular and informal type of social life, and it should not be necessary—nor is it desirable—for people to travel to established town centres for these facilities. There are approximately 100 public houses—excluding other licensed premises—in the Area at present, giving a ratio of about one per 1,200 people. In the plan for the proposed New Town of Hook, it was stated that "the evidence from some existing new towns is that a public house can economically be provided where there are about 6,000 people. We would like, however, to see smaller and more intimate 'locals' . . ." (1) In the report on the New Town of Runcorn, the recommended ratio was one public house per 4,000 people. This ratio of 1/4000 was also thought appropriate for Cambernault, but as a result of objections received from some residents the ratio was reduced to about 1/6000 for the residential areas, with provision for additional public houses in the town centre. "But conditions vary from area to area and depend on the social structure, the type of workers, the traditions, e.g., clubs rather than pubs, and similar factors. A precise and universal catchment figure is, therefore, inappropriate". (2) Much depends, of course, on the attitudes of the licensing authorities in the area. It is suggested that in the Grangemouth/Falkirk Area an overall ratio of approximately 1/4000 would be reasonable, with provision for several public houses in each town centre and the rest distributed throughout the residential areas, taking account of the social characteristics of each area.

9.12. There is the tendency to think of cafes as encouraging idleness among young people and preventing them from using their time for more worthwhile pursuits. This may be one reason why there are few, or none, in many large new housing estates. But young people need to have somewhere other than their own homes where they can go at any time of the day or evening to meet their friends and talk in-

formally. Cafes are the "focus" for the leisure time interests of a large number of teenagers—especially those who do not wish to be organized in clubs. From an experimental project carried out by the National Association of Youth Clubs it was concluded that many young people "... were not attracted to youth clubs because they were reluctant to commit themselves to regular attendance or to the obligations of formal membership. Many merely wanted a congenial place in which to meet. The popularity of the coffee bars was ascribed in part to the fact that they were undemanding and sophisticated meeting places". (3) Where these are lacking, the "... remedy for this lies in the hands of commercial enterprise, but it is also worth considering whether the Youth Service in its building programme might be well advised to provide more facilities of the coffee bar type and so attract many young people". (4) For the last five or six years, several national organizations connected with the Youth Service have been carrying out very interesting experiments in the provision of informal cafe facilities for adolescents in various parts of Britain. Many young people work in "shifts"—an increasing trend—and may therefore have free time when most entertainment and social facilities are shut. In view, also, of the expected increase in population of young people under 20 years of age by 1986, as indicated in Table 9.2, particular attention should be paid to their demands for leisure facilities.

It is recommended, therefore, that there should be a distribution of cafes, in the ratio of about one per 4,000 people, in the Area, and each catering for relatively small numbers of young people. In this way there is less likelihood of "clashes" between different social groups, and cafe staff will find them easier to control.

9.13. The value of hotels in a community—from a social viewpoint—may tend to be overlooked. But where wedding receptions, twenty-first birthdays and other celebrations can be accommodated locally they make a valuable contribution to the "community feeling" of an area. From the survey of social organizations in the Area (Section IV) it was found that many trade and professional organizations liked to have a meal at their meetings, and demand was expected to increase for suitable accommodation in hotels and restaurants. Provision should therefore be made for several hotels in the new town areas.

9.14. In the Grangemouth/Falkirk Area at present there are several commercial facilities which attract large numbers of people. One of the few Scottish ice rinks is located in Falkirk, on the main road to Grangemouth. Apart from attracting thousands of skaters and curlers each year from much of eastern Central Scotland, national and international curling competitions

(1) London County Council, *The Planning of a New Town*, 1961, chap. 8, p.72.

(2) W. Barra, *New Towns for Old*, London, 1963, chap. 4, p.75.

(3) Mary Moore, *The Unsatisfied*, Pelican, 1965, chap. 7, p.220.

(4) Mary Moore, *op. cit.*, p.220.

TABLE 9.2  
*Population in Grangemouth/Falkirk Area in 1961  
and proposed population in 1986*

Age group	1961		1986	
	Population	Percentage total population	Population	Percentage total population
0-4 . . . .	10,758	9	26,714	12
5-14 . . . .	30,408	17	47,857	21
15-19 . . . .	8,526	7	18,352	8
20-60 . . . .	63,905	58	102,186	46
60+ . . . .	16,422	14	28,469	13
All ages . . .	120,017	100	223,508	100

*Source:* Derived from Chapter 3, Table 3.21.

*Note:* These figures are based on rising fertility and marriage rates and are the highest estimates for these age groups.

are held there. At other times the rink is used for wrestling matches, show jumping and exhibitions. In other parts of the building, meetings and conferences can be accommodated, and there are restaurant and bar facilities. Greyhound racing in Falkirk and commercial football in all the burghs also attract many spectators. It is possible that as the urban area expands, new professional football teams will be formed and will want to have permanent use of some football fields. Allowance should be made for this when planning the outdoor recreation facilities for the Area—for example, by including in "public open spaces" one or two football grounds which could at some future date be rented or bought by a professional club.

9.15. It is important that this Area, like many new towns in Britain, should take account of the newer interests which have recently developed. Ten-pin bowling, roller skating, indoor bowls and bingo are among the large space users which may grow in popularity. Suitable provision should be made in each new town centre for this type of facility if and when required.

### Conclusion

9.16. From the planning point of view, commercial entertainment facilities fall into two main categories.

- (i) Facilities of a localized nature, with a relatively stable or predictable demand pattern.
- (ii) Facilities, generally catering for larger numbers of people than the above, with a relatively unstable or unpredictable demand pattern.

Facilities of the first category include public houses, cafes, hotels, theatres for occasional amateur productions. It is suggested that in each town centre there should be provision for several public houses and cafes, one or two hotels and at least one theatre, or stage facilities, for amateur productions. In addition, provision should be made for a distribution of public houses and cafes in the residential areas, to give an overall ratio for the Area of about one public house and one cafe per 4,000 people. Their

location should also take account of the social characteristics of each residential area.

The main problems arise with facilities of the second category. These include:

- (a) Cinemas, purely commercial theatres, dance, bingo and billiard halls and commercial sports facilities, which already exist in most towns. They have all been popular at one time or another, and some still are—bingo halls, for example—but a study of past trends of attendances reveals rather changeable, often declining, demand. Their future popularity cannot therefore be estimated with much certainty.
- (b) Facilities like bowling alleys and roller skating rinks or "dry ski-slopes" which have recently become popular. It is difficult to say whether or not these will remain popular after the initial novelty has worn off.
- (c) New facilities which may be wanted within the next twenty years.

It is recommended that provision be made for commercial entertainment development of the second category in each area of new development. Since these facilities need a "catchment area" of thousands of people, the most suitable location will be the town centres, which will be easily accessible. "The peak period of use for cinemas and theatres, clubs and other social or recreational facilities does not coincide with the peak traffic flow; these buildings can be sited so that their users can park in the shoppers' car parks".<sup>(1)</sup>

Commercial entertainment planning, at a more specific level, must be left until the time of implementation when demand may be known.

### III

#### Physical Recreation

9.17. Physical recreation forms an important and often major part of the leisure time pattern

<sup>(1)</sup> W. Burns, *op. cit.*, chap. 12, p.200.

of any community. In Volume II, the existing and proposed provision of facilities will be considered in detail. Descriptions and recommendations will therefore be kept at a more generalized level in the following paragraphs.

## Existing Provision

### *The role of local authorities*

9.18. Local authorities are responsible for the provision, maintenance and administration of the public parks and many of the recreation grounds, playing fields, children's playgrounds and other "open spaces" in the Area. In addition, there are public swimming baths in Falkirk which, though not large enough for international competitions, are centrally located in the town, are popular, and make a valuable contribution to the leisure-time amenities. In Grangemouth there are plans to build an indoor pool to supersede the open-air one in Zetland Park. Undoubtedly, the most lavish amenity in the Area is the new sports stadium in Grangemouth. Opened in the summer of 1966, it comprises many facilities for football, athletics and other sports, including a running track built to Olympic standards. The stadium will thus serve an area much larger than Grangemouth/Falkirk.

### *The role of private industry*

9.19. Private industry has a significantly large influence on the level and standard of provision of facilities in various parts of the Area to be worthy of particular mention. Its effect can be illustrated by a comparison of facilities in Grangemouth, which is very well endowed per head of population, with those in other parts of the Area (see Volume II). The explanation lies mainly in the concentration of several large industries in Grangemouth (and also in the varying degrees of enterprise and imagination of the local authorities). The industries help in the provision directly through their recreation clubs, which cater for several thousand employees (a considerable proportion of whom does not live in Grangemouth) and sometimes their families too, reducing the demand for municipal facilities. Industries also have an important indirect effect through their large contribution to the town's rates, thus enabling more to be spent on recreation than the town might otherwise have been able to afford. This is exemplified by the sports stadium and by the well-designed Zetland Park, with its gardens, swimming pool, children's corner, tennis courts and bowling and putting greens. Local industry has had similar, but much lesser, effects per head of population in other towns in the region—Falkirk and Denny, for example. Since the majority of these employees are men, there is a tendency for a greater provision of recreation facilities per head for men than for women.

### *The role of voluntary organizations*

9.20. These organizations play a prominent and necessary part in the field of physical recreation, both indoor and outdoor. The former is represented by activities such as judo, boxing, swimming, curling and "keep-fit" and country dancing groups, and the latter by a wide

range of activities—bowling, rugby, tennis, golf, cycling, angling, rifle shooting, etc. Football is one of the most popular sports, with many flourishing junior and senior teams in the Area.

A questionnaire was sent to secretaries of 195 social and professional organizations in the Area, and information was obtained about the adequacy of facilities in view of membership levels and trends. This will be discussed fully in Section III, but one or two points relating to physical recreation clubs may be noted at this stage.

Practically all the members live within three miles, and most within one mile, of the club premises, suggesting that a variety of the more popular recreation facilities should be available within the residential areas—not too centralized, in other words. Short "time-distances" are essential if members are to be attracted. This does not, of course, invalidate the argument that many people are willing to travel many miles for activities such as ski-ing, mountaineering, yachting, etc., which depend on the appropriate physical features of the area where they are located or which need a large "catchment area" of population.

A general complaint of voluntary organizations is lack of finance or space appropriate to the activities and membership of the particular club. One tennis club secretary, for example, thinks that the club may have to close—courts and clubhouses are "cramped" and funds are not available to remedy the inadequacies. A rugby club uses playing fields and changing facilities provided by the local council. The changing facilities are good but overcrowded, as a number of soccer clubs use them. Of the three playing fields—shared by a local school until its own fields are ready—only one is satisfactory throughout the season. Charges for accommodation and use of fields are, however, reasonable. The club is now negotiating to convert 8½ acres of ground into two fields and a clubhouse.

Other complaints include high rates—causing difficulties in a club in Denny, for example—and shortage of parking space.

## Policy and Recommendations

9.21. There is a demand for both public and private provision of physical recreation facilities in the Grangemouth/Falkirk Area. While industries and voluntary organizations already play a most valuable part, they cannot cater for everyone or for every type of recreation. Where large areas of land are required for use by the general public—parks, walkways, etc., where the people using the facilities should not or could not be expected to pay directly for them, children's parks, sports facilities for youths, or where there is not sufficient private provision either because of lack of finance or organizers, or simply because many people want to be able to have recreation facilities without joining a club—then local authorities must provide the facilities. Apart from these reasons, it is desirable that recreation facilities be integrated with the housing, industrial and commercial design of the town. If it were left wholly to private enterprise, recreation development would be piec-

ment, probably badly located (using up residual spaces), and parks, walkways and many other facilities—especially for general use—would be lacking altogether. The private sector does however play an important part by supplementing local authority facilities and in providing "minority interest" membership whereby members can meet their friends socially and also enjoy the recreation activities provided by the club.

9.22. It has been noted that the level and standard of provision of facilities varies from region to region, according to the distribution of industry, provision by voluntary organizations and wealth and enterprise of local authorities. If "public" provision is left to individual local authorities, regional imbalance will continue and may indeed become more exaggerated by 1985. It is recommended that if the Grangemouth/Falkirk Area is to be considered an entry for housing, industrial and commercial development, then the same should be true of public recreation facilities. They should thus be financed and administered by a single authority—a "recreation fund" could be set up. Provision would then be made for the Area as a whole in accordance with total finance.

The question then arises as to the financial support which should be given to voluntary organizations which provide facilities for physical recreation in the Area. At present, it is very difficult to determine whether or not subsidization is advisable as a matter of course, or for clubs in financial difficulties—does membership, or potential membership, justify it? Does a particular club provide a valuable service which is not or cannot be duplicated by the public sector? This strengthens the argument that clubs should keep records of their activities, membership and finance, and that only those who can produce these to support their appeal should be considered for financial help from a fund set aside for this purpose.

9.23. The age structure of the population in 1986 in the Grangemouth/Falkirk Area has important implications for planning physical recreation provision. From Table 9.2 in Section II it can be seen that the proportion of the population in each of the age groups up to 20 years of age will increase—children between 5 and 14 years of age, for example, will form 21 per cent of total population, compared with 17 per cent in 1961. Particular attention will therefore have to be paid to the provision of good playgrounds and sports facilities for young people, apart from any correction of existing inadequacies.

9.24. In the section on commercial entertainment, it was mentioned that leisure time for most people was not only increasing but becoming more staggered, resulting from a rising proportion of "shift" work in industry and commerce. Most recreation and entertainment at present "assumes" a 9-5 working day, with free time at weekends, and thus people who have "free" mornings or afternoons during the week, and who work in the evenings and at weekends, have a smaller choice of leisure-time pursuits. The imbalance for this section of the population is minimised for employees in the

larger firms which have their own recreation facilities. The availability and use of these can be geared to the varying work patterns of employees. On the other hand, youth clubs, which provide many young people with indoor recreation facilities, tend to be open only at the more popular times; extension of hours may be limited by difficulty in obtaining leaders or premises and by the probable small attendances at "off-peak" hours at any one club.

One solution might lie in the public provision of more centralized facilities, open at all times of the day, and catering for a much larger proportion of the population than one youth club for example. The Ice Rink and Swimming Baths in Falkirk already provide this type of service, but in view of the (almost) doubling of the population by 1986, much greater provision will be necessary. To attract and maintain the interest of a sufficiently large number of people, such facilities should be easily accessible and admission prices—if any—kept as low as possible. One or more of the community centres (recommended in Section IV) in the town centres, or some of the larger parks, could incorporate a gymnasium, indoor swimming pool or other indoor sports facilities. This would also help to restore the balance between sports and athletics opportunities available to young people in schools and colleges and those for "non-students"—particularly those who could not or did not wish to join a club. It might be necessary to give further encouragement to young people. This could be done by offering instruction in mountaineering, sailing, skiing, etc., and perhaps linking these to outdoor courses, such as sailing at Bo'ness. The main problem would probably be in the recruitment of sufficient staff—a problem already faced by youth groups.

9.25. Imaginative planning is required for all types of recreation facilities. All too often, for example, provision for children turns out to be a few swings or roundabouts, with no sheltered accommodation. What happens when it rains or when they get bored with fixed equipment which hardly varies from one playground to the next. In many parts of the country, adventure playgrounds have been built and have already proved to be very popular among the 5-14 age group. By encouraging and giving scope for creative play, the interest is maintained for much longer periods and children are less likely to "get into mischief". Such playgrounds should, wherever possible, incorporate indoor facilities—a clubhouse where children can amuse themselves, or be amused, under the supervision of a play leader. At least some playgrounds like this should be practicable for an area with a child population (5-14 years) of over 47,000. Less elaborate, but numerous, small playgrounds are necessary for young children, and these should be incorporated in the environmental design of the residential areas. Odd "wedges" of ground and space between houses would provide suitable sites, accessible by pedestrian ways, and as far as possible from traffic. This type of land use can be seen in Cumberland for example. Apart from some simple play apparatus, and seats for adults, one or two trees would be attractive and would provide some shelter. In



the more central areas where housing density is highest, playgrounds could be larger, incorporating some of the features of adventure playgrounds, including indoor facilities. Public parks should all have "children's corners".

Use of parks, by everyone, will be encouraged if they are attractively designed, easily accessible and provide a variety of amenities for passive and active recreation. They will also help to create an attractive environment, reducing the severity of large-scale urban development to a minimum. There are already many parks in the Area (see Volume II), some of which might be improved or extended. Additional space will, however, have to be allocated for parks, appropriate to the proposed 1986 population level and distribution (see Volume II). It is recommended that small local parks be included in each new town area and that a larger central park (perhaps between Falkirk and Larbert) be created as a focal point for outdoor recreation in the Area as a whole, linking the separate communities. Among its amenities there could be gardens, a boating lake, playing fields, tennis courts, bowling and putting greens, a children's corner, restaurant and possibly such features as nature trails and indoor sports/gymnasium facilities.

Landscape and historical features in the Area should be highlighted where possible, with walkways along the rivers, the Antonine Wall and reservoirs. The peripheral countryside, including the hill lands, will be used primarily for agriculture and forestry, but it is recommended that it should accommodate the more extensive recreational activities such as hill-walking, rambling, cycling, golf, camping and rifle shooting.

9.26. Finance and space are major determinants of the level and standard of provision of sports facilities for the general public. Many schools in Scotland are now being built with well-equipped gymnasiums, good playing fields and even swimming pools, which are used only during school hours by a small section of the population. Much more use should be made of these facilities to economize on their provision. It is thus recommended that either these be available for use outwith school hours, by youth clubs, etc.—this is being discussed at present by the Youth Service and Education Authorities—or that outdoor sports facilities and swimming pools be planned for general use, with priority given to schools during school hours. Both these schemes would involve changes in the administrative structure of the facilities and close liaison between education authorities, town councils and other public authorities, but this should not prevent progress in this direction.

9.27. It should also be remembered that amenities like good changing rooms and some sheltered spectator accommodation, for sports and games, can contribute much to the enjoyment of players and spectators respectively. Considering the cold, often wet weather experienced in Eastern Scotland, it is essential that shelter and ample indoor facilities be provided in association with all types of outdoor recreation facilities.

## Conclusion

9.28. The main point to emphasize is the important role which recreation does and should have in the life of any community. Recreation facilities must therefore form an integral part of the plan for the development of the Grangemouth/Falkirk Area. Many excellent facilities exist in the Area already, covering a wide range of activities, but these will by no means be adequate for the 1986 level and distribution of population.

Various standards have been proposed for provision of recreation land. These range from 8-9 acres per 1,000 population<sup>(1)</sup> to 15-2 acres per 1,000 population.<sup>(2)</sup> For adult playing fields alone, the National Playing Fields Association has suggested six acres per 1,000 as an appropriate ratio. Thus, when all other outdoor recreation acreages are included—especially parks and golf courses—the desirable ratio will probably be well over ten acres per 1,000. To achieve an overall ratio of, say, 11-5 acres per 1,000 in 1986, an additional 1,000-1,500 acres for recreational use would be required in the Grangemouth/Falkirk Area. This is quite feasible. However, acreage should only serve as a guide for provision of facilities. Type, quality, distribution, administration and utilization are equally, if not more, important factors to be considered.

In this Section of the Chapter only generalized recommendations—indicating the principles which should be adopted—have been made as to the provision of physical recreation facilities in the Grangemouth/Falkirk Area. More detailed observations on some of the points will be made in Volume II.

## Summary of Recommendations

9.29. A single authority and central fund for provision, administration and finance of public recreation facilities should be set up for the entire Area.

9.30. Particular emphasis should be placed on the provision of facilities for children and young people in the light of the rise in the proportion of young people under 20 years of age by 1986.

9.31. Planning must be imaginative, to take account of changing interests and demands and of the changing pattern of leisure hours. In particular, provision should be made for more indoor sports, games and play facilities, for use at all times of the day and in the evenings. These should be located where they will be easily accessible by public transport. Parks, open spaces and other recreation facilities must be interrelated with the other urban and landscape features.

9.32. Each of the recreation facilities should be made available to as large a section of the population as possible, to economize in their provision and maximize their use.

<sup>(1)</sup> J. Ciesz, 'Town Expansion at Andover', *Journal of the Town Planning Institute*, December, 1962.

<sup>(2)</sup> Ministry of Housing and Local Government standard for 'Large Town Map Areas'.

9.33. Attention should be paid to "details" like good changing rooms and sheltered accommodation, which can contribute so much to the enjoyment of outdoor recreation.

#### IV

### Community Life

9.34. While the demand for different types of leisure activity or entertainment changes, it is true to say that the non-commercial social organizations continue, and will continue, to form an integral part of the life of any community. In making an assessment of the importance of these and of the form and level of provision of facilities available, the vast range of organizations must be stressed. Not only is there a wide variety within an area at any one period of time—catering for all ages and many interests—but the continual change in tastes, amount of leisure time and affluence result in a considerable variation, through time, in the range of organizations. It is impossible, therefore, to make very detailed predictions of the range of activities 20 years hence.

9.35. The main aim of the Chapter must be borne in mind throughout this study of the social organizations in the Area—the relevance for land-use planning of their requirements for accommodation by 1986. These, in turn, will depend on the expected range of activities and interests, on the expected membership level, and on the quantity, adequacy and distribution of the existing provision. Recommendations can then be made for improvements, modifications and additions to the facilities already available.

9.36. For the most part, this Section of the Chapter is based on information from questionnaires sent to secretaries of 195 social organizations, and 12 community centres, and to 60 ministers in the Grangemouth/Falkirk Area. The 95 social organizations, 4 community centres and 23 churches for which fully completed questionnaires were returned, represent a large variety of interests and activities, covering all the main types of relevant organizations in the Area. While the three questionnaires differed to some extent in content, all were designed to provide information about member-

ship trends and premises, to serve as a guide for future requirements for social facilities. Further details about the response rates and sample distribution are given in the Appendix. But at this stage it should be noted that the sample distribution may not present an accurate picture of organizations in the Area. It may be that those organizations for which no response was obtained are run less efficiently, on the whole, than the sample organizations—or they may not have kept records of membership, finance, etc. Alternatively, the non-responders may be neither very optimistic nor very worried about the future and thus have not been prompted, by great success or grievances, to reply. Figures and trends quoted in this Section refer only to the sample group.

9.37. Organizations will be discussed under the headings of "social organizations", "church organizations" and "community centre groups" to avoid confusion. These may be sub-divided as at foot of page:

9.38. One of the main factors affecting the type and size of premises required is the membership level of each organization. From the analysis of the questionnaire (see Table 9.14 in the Appendix) it would appear that of the social organizations, those with 20-60 members are the most common, followed by organizations of 60-100 members. Children's and youths' uniformed organizations tend to be in the 60-100 range, while organizations for old people cater for larger numbers (over 100 in each of the sample organizations), as do sports groups. The adult "service and professional" groups mostly have fewer than 60 members, while the other mainly adult organizations reflect the general structure. However, it is not the total membership level of each organization that is important, but rather the "active" membership level, as indicated for example by the average attendance at meetings. Practically all the sample organizations have average attendances of less than 100, with the 20-60 range predominating, followed by the 60-100, then under 20, ranges. In Table 9.3 the active participation rate (as expressed by the average attendance as a percentage of the total membership) can be seen to vary according to the type of group.

Although the rate for all groups was found to be about 45 per cent, it is over 90 per cent in

		Short title, for future reference Social Organizations
<i>Social Organizations</i>		
(1) Groups exclusively for children or young people—uniformed		Uniformed youth
(2) Groups exclusively for children or young people—non-uniformed		Non-uniformed youth
(3) Groups mainly or exclusively for adults—hobbies, special interests		Adults (special interests)
(4) Groups mainly or exclusively for adults—service, welfare, professional		Adults (service)
(5) Groups for old people		Old people
(6) Works' recreation clubs		Works' recreation
(7) Groups mainly for adults or for mixed ages—sports		Sports
<i>Church Social Organizations</i>		<i>Church Organizations</i>
(1) Groups exclusively for children or young people—uniformed		Uniformed youth
(2) Groups exclusively for children or young people—non-uniformed		Non-uniformed youth
(3) Groups mainly or exclusively for adults (except for those under '4')		Adults
(4) Groups for mixed ages, using quite a lot of space—dancing, badminton, etc.		Large-space users

TABLE 9.3

*Social Organizations**Average attendance as a percentage of total membership<sup>(1)</sup>*

Type of Group	Percentage
Uniformed youth . . .	92.7
Non-uniformed youth . . .	75.4
Adults (special interests) . . .	67.1
Adults (service) . . .	40.5
Old people . . .	26.8
Weeks' recreation . . .	22.9
Sports . . .	13.6
All groups . . .	44.7

<sup>(1)</sup> Figures refer to all groups giving information about average attendance and total membership—39 groups.

the uniformed youth organizations, 67 per cent for adult "hobbies and special interests" groups, and less than 14 per cent for sports clubs.

9.39. Church social organizations normally have between 20 and 60 members—total membership and average attendance. A considerable number have less than 20—especially with regard to average attendance, and many have total membership level of 60–100. Youth and children's organizations—especially uniformed groups—have a fairly high active participation rate, as can be seen in Table 9.4, although lower than in similar non-church organizations (this difference may be due to inaccuracy in statistics rather than real—the general scale of rates is still valid). The participation rate for most adult groups is similar to that for the adult "hobbies and special interests" social organizations, and is higher than the badminton, dancing and "keep-fit" groups attached to the churches.

TABLE 9.4

*Church Organizations**Average attendance as a percentage of total membership*

Type of Group	Percentage
Uniformed youth . . .	83.8
Non-uniformed youth . . .	71.5
Adults . . .	69.2
'Large-space users' . . .	77.8
All groups . . .	75.3

9.40. From the above figures it might be concluded that large rooms/small halls would suit the needs of most organizations as far as actual numbers are concerned. But this no longer holds true when the types of activities are considered. The most obvious example is that of the organizations catering for children and young people. Much space is needed for indoor games and dancing, gymnastics and indoor sports, and for storage of all the equipment used, and thus large halls are necessary if activities are

not to be hampered. The same is true of adult groups, such as badminton and other physical recreation organizations. Special facilities such as a stage and comfortable seating facilities are necessary for dramatic and musical organizations, and exhibitions and displays often require large halls with plenty of car-parking space nearby. How adequate is the provision of these premises and facilities in the Grangemouth/Falkirk region will be discussed later in the Chapter.

9.41. It might be thought that the demand for social organizations—especially those organized by churches—is waning fairly rapidly and that the future requirements for premises will not increase proportionately with population increase. To see how applicable this may be to the Grangemouth/Falkirk region, secretaries and ministers were asked in the questionnaires to indicate membership trends—both past and expected, and to give reasons wherever possible. The following few paragraphs are based on their replies.

9.42. In rather less than one-third of the organizations replying to the first questionnaire, membership over the last ten years has been increasing, whereas in just over one-fifth it has been decreasing. It should be noted that perhaps a greater proportion of "non-responders" have decreasing membership. In almost a half there has been little change, or minor fluctuations from year to year. When the various "regions" in the Grangemouth/Falkirk Area are considered, divergences from the general pattern become apparent—see Table 9.5. For example, 11 of the 30 organizations in Falkirk are decreasing in membership and only seven increasing, contrasting with the position in Grangemouth where 10 are increasing and only three decreasing. When the type of group is considered, it can be seen from the Table that the groups with decreasing membership are the mainly-adult hobbies, special interests, service and professional organizations. The other organizations have been increasing in size or staying fairly constant over the 10-year period. This may partly explain the difference between Falkirk and Grangemouth, since the organizations declining there are mainly the "mainly-adult" groups, which form a much greater proportion of total groups in Falkirk than of total groups in Grangemouth. On the other hand, many of these two groups have had constant or even increasing membership. In both Falkirk and Grangemouth the membership is increasing in several types of group.

9.43. In more than one-third of the church organizations membership is increasing, and in just less than a half it has remained fairly constant or is fluctuating. In only 12 has membership been decreasing—in uniformed youth and adult organizations.

9.44. In all the organizations it is mainly the smaller groups that are decreasing—the present membership level is probably the result of the trend. Not surprisingly, organizations with a trend of increasing membership include larger groups (two have over 600 members)—but

predominantly groups of 20-60 members in the case of church organizations and of 60-200 members in the other organizations.

9.45. The reasons for past membership trends give some indication of the basis for future pessimism or optimism.

9.46. Increasing interest in the organization—sometimes because of extension of activities or age range—is a major cause of growth of non-church organizations. Increase in population or potential members in the Area (especially in Grangemouth) is also important. Good leadership or organization, better accommodation, campaigning and encouragement (of youth) are also cited, while the changing age structure of the population—more children for example—is significant for organizations catering for younger members of the community. Since many of the church groups that are growing in numbers are for young people, it is to be expected that good leadership or organization is

the main factor, while population growth—especially in new residential areas—is also important. Several organizations have been newly formed—new Scout/Guide companies, young mothers' groups, etc.—reflecting population growth in an area, and in these membership has also been increasing but will probably settle within a year or two. Others, realizing that their activities and interests are rather out-of-date, have been modernizing their syllabuses or expanding their activities in order to attract more members.

9.47. As a corollary, where interest in activities has been waning, or where TV, bingo or other organizations have proved successful forms of competition, membership of social organizations has been falling. This is especially true of Falkirk and the "mainly adult" groups. In few cases has accommodation been blamed and in only one has the cause been that of members leaving the Area. Church organiza-

TABLE 9.5  
Social Organizations  
Membership trends: (f) past trends  
By Area and by Type of Group

Area	(Total)	Trend			
		Increasing	Decreasing	Constant	Don't Know
Falkirk . . . . .	(30)	7	11	12	—
Grangemouth . . . . .	(19)	10	9	6	—
Borness . . . . .	(9)	5	—	4	—
Denny and Dunspey . . . . .	(9)	2	1	6	—
Bonnybridge . . . . .	(9)	9	2	4	—
Larbert . . . . .	(9)	—	3	5	1
North . . . . .	(3)	—	—	3	—
South . . . . .	(2)	1	—	—	1
Polmont . . . . .	(5)	1	—	3	1
All areas . . . . .	(95)	29	20	43	5
Type of Group	(Total)				
Uniformed youth . . . . .	(12)	5	—	7	—
Non-uniformed youth . . . . .	(4)	1	1	2	—
Adults (special interests) . . . . .	(37)	9	11	16	1
Adults (service) . . . . .	(19)	4	7	7	1
Old people . . . . .	(5)	3	—	2	—
Worship recreation . . . . .	(9)	3	—	4	—
Sports . . . . .	(9)	2	1	5	1
All groups . . . . .	(95)	29	20	43	5

TABLE 9.6  
Church Organizations  
Membership trends: (f) past trends

Type of Group	(Total)	Trend				
		Increasing	Decreasing	Constant	Fluctuating	Don't know
Uniformed youth . . . . .	(57)	23	7	20	4	3
Non-uniformed youth . . . . .	(14)	5	1	7	1	—
Adults . . . . .	(55)	21	4	26	1	3
Large-space users . . . . .	(6)	2	—	2	—	2
All groups . . . . .	(132)	51	12	55	6	8

tions, on the other hand, seem to be failing to maintain members where there is insufficient leadership, lack of space or amenities, or simply decreasing interest in the syllabus.

9.48. The most common reason for a constant trend in social organizations, and one reason in church groups, is a restriction on membership by the rules or "entrance" requirements of the organization—especially in Falkirk—or by its nature, for example an orchestra. Unchanging population or numbers of employees, maintained interest—sometimes as a result of campaigns—and much encouragement (the main factors in the case of church groups) all help to keep membership up. Other organizations could expand were it not for a lack of leaders or accommodation.

9.49. There is, naturally enough, far less certainty about future trends—16 of the social organizations and 18 of the church organizations

could not hazard a guess (Tables 9.7 and 9.8).

Proportions of organizations expecting an increasing and constant or fluctuating trend are similar to the existing ones. A half of these social organizations expecting an increasing trend are in Grangemouth. In only four social organizations—two in Falkirk and two in Larbert—is membership expected to decrease (because of lack of interest or financial difficulties), while this is true of 14 church organizations (most of these because one church is in an area where much demolition is taking place and hence the congregation is diminishing rapidly).

9.50. Much faith is placed by secretaries and ministers on expected population increases adding to potential, and then actual, membership of the existing social and church organizations. This is particularly applicable to Grangemouth (explaining the high proportion

TABLE 9.7  
Social Organizations  
Membership trends: (ii) future trends  
By Area and by Type of Group

Area	(Total)	Trend			
		Increasing	Decreasing	Constant	Don't know
Falkirk . . . . .	(30)	3	2	16	9
Grangemouth . . . . .	(19)	13	—	5	1
Bo'ness . . . . .	(9)	2	—	7	—
Denny and Dunipace . . . . .	(9)	1	—	7	1
Bonnybridge . . . . .	(9)	1	—	6	2
Larbert . . . . .	(9)	2	2	4	1
North . . . . .	(3)	2	—	1	—
South . . . . .	(2)	2	—	—	—
Felmont . . . . .	(5)	1	—	2	2
All areas . . . . .	(95)	27	4	48	16
Type of Group	(Total)	Trend			
		Increasing	Decreasing	Constant	Don't know
Uniformed youth . . . . .	(12)	6	—	6	—
Non-uniformed youth . . . . .	(4)	—	1	2	1
Adults (special interests) . . . . .	(37)	8	2	20	7
Adults (service) . . . . .	(19)	2	—	10	7
Old people . . . . .	(5)	4	—	1	—
Weeks' recreation . . . . .	(9)	5	—	6	—
Sports . . . . .	(9)	4	1	3	1
All groups . . . . .	(95)	27	4	48	16

TABLE 9.8  
Church Organizations  
Membership trends: (ii) future trends

Type of Group	(Total)	Trend				
		Increasing	Decreasing	Constant	Fluctuating	Don't know
Uniformed youth . . . . .	(57)	18	6	24	1	8
Non-uniformed youth . . . . .	(14)	7	3	1	1	2
Adults . . . . .	(55)	22	5	21	1	6
Large-space users . . . . .	(6)	1	—	3	—	2
All groups . . . . .	(132)	48	14	49	3	18

of groups expecting to increase in size there) and to the "unformed youth" and "adults (special interests)" groups in both cases. The adoption of new ideas, methods and activities and increasing interest in the organizations (probably as a result) are also important.

9.51. The expected increase in the number of old people will continue to add to potential membership of old people's clubs and to other organizations to which they may belong. One secretary of an old people's club remarked in the questionnaire that the "working classes" were more inclined to take advantage of the facilities and opportunities offered, and the help and companionship, than were people in a better financial position. Thus, there may not be much demand for the traditional type of old folks' organization in the proposed new residential areas—apart from the fact that the population structure in such areas will probably, for many years, be biased towards the lower age groups. But it should be remembered that many "old people", especially those only recently retired, are still very active, and in future the number of such people will be considerably greater than at present. Allowance should therefore be made for a rise in demand for premises and facilities—such as bowling greens—to suit their activities.

9.52. In most organizations, however, the trend is expected to remain fairly constant, with new members balancing those who leave—by young people joining organizations that had previously attracted parents, or brothers and sisters, or by new people coming into the Area. Some are being held constant to suit the accommodation/leaders or to comply with rules and policy of the organization. But many are not expected to decrease only because the population is expected to increase by a sufficient amount to overcome declining interest/participation among the existing population. Campaigning and encouragement, new accommodation and lack of competition from other groups in an area, and loyalty of some members, all help to arrest or prevent a trend of decreasing membership. On the other hand, lack of leaders or accommodation, and apathy have prevented some organizations from increasing—waiting lists for "Cubs", for example, show that the demand still exists.

9.53. The proposed modernization of the Scout movement is an example of an attempt to attract more members into a traditional organization—and perhaps more important, to maintain their interest beyond the childhood stage.

The Youth Service, too, is very active at present and is now working in close association with the education authorities. This has strengthened its powers to obtain finance and, as a result, much more than formerly is being provided in the way of youth facilities. Rather than "the prevention or reduction of juvenile delinquency", the emphasis is now the more positive one of giving young people opportunities to develop and widen their interests. But, undoubtedly, new organizations altogether will be formed within the next 20 years as new

interests develop. Many people like to belong to organizations for the companionship for example, and if the activities/hobbies begin to lose their appeal, new interests will be devised to take their place.

9.54. In the light of the increase in proportion of young children by 1986 (see Table 9.2), the growing popularity of play groups for pre-school children is particularly important. Few nursery schools (other than for underprivileged or handicapped children) exist in the Area at present, and waiting lists show that the demand is far from being satisfied at the present population level. When the proposed new residential areas are considered, the scope for expansion of such play facilities—suitably equipped small halls, for example—is vastly increased. Thus, it is important that provision should be made not only for the existing numbers and types of groups, but for groups which may develop within the next 20 years or so.

9.55. It would seem, therefore, that if the demands of all existing and possible future organizations are to be satisfied, a large number and variety of premises will be needed—club rooms or small halls for "inactive" adult groups and as "offices" for "service" organizations; large halls for meetings, for youth groups and indoor games/sports, and exhibitions; and outdoor open spaces and clubhouses for bowling, tennis, football, etc., clubs. The number of such premises cannot be estimated with any accuracy, but must be based to a large extent on the size of the population in each part of the Area and, in particular, on the age and socio-economic structure, since it has become apparent from the above paragraphs that these have a bearing on the type of premises required. Since organizations for young people, old people and sports are particularly likely to increase as population increases, and since it is desirable that these should be encouraged (to attract an increasing proportion of young people and to reduce the loneliness of old people, etc.), provision of premises to suit their requirements should perhaps be the major consideration.

9.56. This leads to the next question: how should these premises be distributed throughout the Area? This depends mainly on the type of organization, and also on the sizes of the residential "zones" and the travel facilities available.

9.57. The simplest situation is that of the church organizations, where a church hall, or suite of halls and rooms, adjacent to the church itself, would be the ideal arrangement since the members will then not have far to travel. Since churches will be distributed fairly evenly throughout the Area, so also will be their premises for their organizations.

9.58. Where the other social organizations are concerned, the ideal distribution is less obvious. Table 9.16 in the Appendix does throw some light on this. It can be seen that at present most people live within one mile of the meeting place. The unformed youth organizations (in the sample) draw all their members from less than three miles, and mainly from less than one

mile, while old people all live very near their "club". In the villages, as would be expected, all the organisations attract only the local population, and if the premises were mainly in the "centres" of these villages they would comply fairly well with the existing "localization".

9.59. In the burghs and larger proposed residential areas, however, a central location will be desirable for large halls and some smaller premises—to cater for exhibitions, dances and specialist interest groups which by their nature must draw members from a fairly wide area. Good bus services and car park facilities are obviously very important. But the most popular organizations, youth and children's and old people's groups, will best be served by a distribution of suitable premises throughout the residential areas so that the maximum travelling distance for young and old people will be about one mile. More will be said about this in the conclusion.

9.60. With regard to provision of premises for organizations by 1986, the Grangemouth/Falkirk Area has certain advantages and disadvantages over a new town of similar population. It has the advantage of already having halls/rooms, etc., which can be and are used for meetings and functions, but a disadvantage in that there may be a tendency, or rather a necessity, to "make do" with old, inadequate and unsuitable premises in many parts of the Area. Table 9.9 illustrates the variety and use of accommodation in the Area at present.

9.61. It can be seen that "other halls" (Co-op. Halls, Red Cross Halls, British Legion Halls, T.A. Halls and other non-public halls) are used by more groups than any other single type of premises. Many organizations utilize hotel/restaurant and cafe facilities, and a considerable number use town or public halls, club rooms or private houses, and school and church halls. Scouts mostly have their own Scout halls and many, attached to churches, use church halls. Most churches (all but two of the sample group) have their own hall, although several make use of other premises (the church, or manse, and school and community centre halls, and Scout and Guide huts) for some of their organizations. Not surprisingly, the town and public halls are most favoured for exhibitions and functions, although church halls, and the ice rink in Falkirk, are also used quite a lot. The regional distribution of premises may be seen in the Table, but one or two points may be noted. In Falkirk, many groups use local restaurants, church and school halls, while in Grangemouth "other" halls and hotels are favourite meeting places. But the new Town Hall in Falkirk opened in 1966, will most likely be used far more in future—especially for concerts and exhibitions.

9.62. Of the 95 social organizations investigated, only one-third own their premises, although 11 more meet in premises rented by them or rented/owned by associated bodies (e.g., the Co-op. Guilds usually meet in Co-op. Society halls). Works' recreation clubs, sports

clubs and Scout groups have the highest ownership rates, while most of the other adult organizations hire their premises. By region, most social organizations in the Polmont, Larbert, rural areas and Bo'ness own/rent their accommodation, while most in Falkirk use hired premises. Very few groups with their own/rented premises share with others, and it is noteworthy that although almost a half of the groups (in the sample) at present hiring premises would like to own their accommodation, only two are dissatisfied with their hiring charges. Several have had difficulty in booking—with regard to desired date, time or both.

9.63. From the questionnaire replies, it would seem that many organizations are not very satisfied with their present accommodation. Almost a half of the 95 social organizations were "very satisfied" with only six or fewer of the 13 facilities mentioned in the questionnaire. Relatively few, however, were completely dissatisfied with more than five. Table 9.10 indicates the facilities which secretaries would most like to be improved.

9.64. Lack of sufficient space for activities, storage or both, and poor heating, are the main complaints. Other organizations find the furnishings uncomfortable or inadequate and note an inadequacy of amenities, such as cloakrooms, or unsuitability of premises for their activities. While car-parking space is lacking in only one or two cases, it was mentioned several times with regard to halls, etc., used for exhibitions and amateur productions. It has become apparent that one or two public halls are completely unsatisfactory, to the point of discouraging audiences.

9.65. These difficulties (especially lack of space), together with the need for modernization and replacement of premises due for demolition, render many premises inadequate for the future, especially in the light of expected increase in membership, or desired expansion of activities, of many groups. Most pessimism seems to lie with the assortment of "other halls" (see Table 9.17 in Appendix).

9.66. A considerable number of secretaries of organizations (one-third of the sample) would prefer to have different premises. Many would like to own instead of hire—mainly for independence; others are dissatisfied with the poor state of the public halls which they use. In some cases groups will have to move when their premises are demolished. The need for more space, more suitable accommodation and a better location are also important. Of the "sample organizations", about one-third of those wanting other premises mentioned that they would like a more central location—or to be on a bus route. (These are adult groups.)

9.67. By contrast with the social organizations, church groups are largely accommodated in their own church halls provided by, and the responsibility of, the congregations themselves. Many of the facilities mentioned seem to be inadequate in the halls and especially in the "other premises" used. The lack of sufficient room for activities and storage in many church

TABLE 9.9

*Social Organizations  
Premises used for meetings  
By Area and by Type of Group*

Area	Hotel/ Restaurant or Cafe	Sports Club premises	Church Hall	School Hall	Town/Public Hall or Community Centre	Scout/Guide Hall	Other Hall	Room/ House (incl. converted)
Fulford	0	2	5	4	3	0	0	0
Grange Heath	5	—	—	1	3	1	0	—
Be'ton	—	—	1	0	0	—	4	1
Dunry and Doulton	2	1	1	—	—	1	0	0
Scotneybridge	2	—	—	1	2	0	0	—
Laibert	—	4	—	—	—	1	1	4
North	—	1	—	—	—	1	1	—
South	—	1	—	—	1	—	—	—
Pelton	—	1	1	—	—	1	2	1
All areas	28	10	8	8	11	6	24	10
Type of Group								
Uninformed youth	—	—	—	3	—	7	2	—
Non-uniformed youth	—	—	1	1	—	—	1	1
Adults (special interests)	7	—	5	4	10	—	7	4
Adults (services)	10	1	1	—	—	—	3	0
Old people	—	—	1	—	—	1	2	0
Warrior recreation	—	2	—	—	—	—	6	1
Sports	1	7	—	—	1	—	1	—
All groups	18	10	8	8	11	8	24	10

*Note:* Numbers refer to number of groups using premises, not to the number of premises. For example, several groups use one of the restaurants, while several other groups use more than one premises (in which case both are marked).



TABLE 9.10

## Social Organizations

Facilities which secretaries would most like to be improved  
By Type of Group

Type of Group	Heating	Lighting/ Furnishing	Amenities	Space	Location	Subsidiary	Car Parking	Sound Isolation	Others
Uniformed youth	4	—	2	5	—	—	—	—	Most things (one)
Non-uniformed youth	—	1	—	1	1	1	—	—	Everything Security of lease
Adults (special interests)	5	7	6	5	—	3	—	1	Cleaning Hiring fees Everything (two) Various Refreshments
Adults (service)	3	1	—	1	1	1	2	2	
Old people	1	1	—	1	—	—	—	—	
Workers' recreation	—	—	2	4	—	—	—	—	
Sports	4	1	1	4	1	2	1	—	Floodlighting
All groups	17	11	11	21	3	7	3	3	

Note: Space includes space for storage as well as for activities, as many secretaries did not distinguish between them in this particular question.

halls and other premises may be illustrated by the fact that only 11 of the 23 ministers who completed the questionnaire said there was sufficient space available for their organizations—especially if population increases. Several use the manse, school and community centre halls, etc., as "overspill" accommodation and for the use of youth and children's organizations which find the church hall too restricting.

9.68. The utilization and adequacy of community centres in the Area are rather more difficult to assess as detailed information is available for only four. Each of these four centres has a main hall of over 1,000 sq. ft. and at least one smaller room—committee room, reading room or lounge. One has a gymnasium and separate youth premises, used every day. The number of people using the centres each evening varies—from 10-30 in one centre and from 70-80 in another two, for example. Some accommodate teenage dances, when attendances are higher than on normal evenings—80-100 or up to 250. Space, particularly for storing equipment, is again a major problem, and at least one organization has been discouraged from using the facilities because of lack of room at the required time. Outdoor sports facilities are either not available or are inadequate, and games equipment seems to be limited in most cases.

9.69. Yet, despite so much dissatisfaction with premises—which may or may not be exaggerated—relatively little is actually being done to alleviate the situation or provide new and better facilities for the future. The main reason—mentioned in nearly every case—is lack of finance (see Table 9.18 in the Appendix). This is by no means peculiar to the Grangemouth/Falkirk Area and it is very unlikely that finance will ever be sufficiently available to satisfy all demands or desired improvements. Since subscriptions cover only a proportion—often a very small proportion—of expenses in most organizations, much reliance has therefore to be placed on alternative sources of finance. Fund-raising activities such as concerts, jumble sales, profits on teas, coffee mornings, dances, etc., and Bob-a-Job week amongst the Scouts, provide extra finance in the majority of organizations. Several receive donations from the public, and others are recipients of grants from the education authority and from local councils (old people's groups especially). Works' recreation clubs and sports clubs often benefit from profits from the bar in the premises, while other groups receive company subsidies (works' groups), grants from other private funds, or from the "parent" organization. It may be interesting to note that of the 95 social organizations studied, only 17 were said to be "independent", while the remainder were branch or affiliated organizations, at least some of which could be subsidized by other branches/sections.

9.70. Church congregations normally have to provide the finance themselves for any "hall" expenditure, and this is largely done by the usual fund-raising activities and with the help of donations. It may be that the less wealthy

congregations, which might benefit most from the facilities, are least able to afford them.

9.71. Apart from the financial problems, apathy, difficulty in finding suitable alternative premises and shortage of ground for expansion of existing ones are also partly responsible. However, some plans have been made and others recently completed—plans to extend, build own headquarters, improve heating, and so on. For example, £4,000 has recently been spent on improvements to Kinneil Institute—the Miners' Welfare Hall at Bo'ness—which caters for 600 members. Despite the addition of adjacent new premises in 1960, growing attendances had been stifled by lack of room. With the recent modernization, space for 200 members has been provided. Several plans are still at the "discussions", "fund-raising" and "enquiries" stages. The community centres and public halls are the responsibility of the local authorities, and although plans have been made for the improvement of some centres by the provision of more halls, better heating, etc., these have been held up again because of lack of finance. According to the secretaries of organizations using them, the public halls in Bonnybridge and Polmont would seem to be in urgent need of replacement.

9.72. In the questionnaires, space was provided for general comments on social life in the Grangemouth/Falkirk Area. Many ministers and secretaries suggested ways in which facilities might be improved and highlighted some of the main problems faced by the voluntary organizations.

9.73. With regard to social organizations, about 50 per cent of the secretaries commented about accommodation problems which they felt hampered many organizations. Two or three in Falkirk expressed the view that a small social centre, or a number of smaller rooms, where smaller groups and normal meetings could be held, would be welcomed. It would seem that Falkirk is not well endowed with such facilities. Whilst a number of groups use the rooms of a restaurant there, for example, facilities are by no means completely satisfactory—no room for exhibitions, too much noise due to poor sound insulation, etc. Other accommodation tends to be very difficult to find, and many organizations have to meet in school and church halls—not always very comfortable or suitable. While several groups have already used the New Town Hall in Falkirk for exhibitions, etc., there have been complaints about the sizes of the halls, the facilities offered, and the hiring charges. Nevertheless, it is a valuable addition to the amenities in the Grangemouth/Falkirk Area and many organizations will use it. Because of the shortage of meeting rooms, some secretaries said they would like to see a suite of rooms laid apart for meetings, with refreshment facilities at hand. Costs of hiring available room(s) at present discourage some organizations—especially smaller ones, which would prefer to hire smaller rooms more cheaply.

In Grangemouth also there were complaints about lack of suitable accommodation. One secretary felt that each group, especially youth groups, should have a place of its own. Another

thought that there was great scope for converting the local T.A. building into a social and athletic centre. The scarcity of car parks in areas where clubs want to hold exhibitions presents further problems.

Secretaries in Larbert, Polmont and Bonnybridge would all like to have a new local community centre. Poor facilities at present, they argued, discourage audiences for local productions. In Polmont it was felt that a lunch club for old people would be desirable, but impossible unless new accommodation could be found.

Apart from problems relating to premises, however, many secretaries said that more encouragement—financial and otherwise—by the local councils and inhabitants would be valuable, especially with regard to youth. Increasing costs of equipment and premises, and the costs involved in having to subsidize youth—to attract and maintain their interest in the clubs—was said to be causing difficulties in several cases and was hindering expansion/improvements of accommodation and hence of membership in many cases.

9.74. With regard to church organizations, many ministers are also concerned about the need to provide more facilities of a suitable nature, especially for youth. Several ministers said they would like another larger/smaller hall, and at least one large and one small hall would seem to be desirable. It was also thought by some that young people would benefit from having a "place of their own"—thus, in one church the youth group uses the basement of the church hall. Some are now thinking in terms of inter-congregational or inter-organization planning to provide facilities in general for more than just one congregation, or even for more than just church organizations. One minister, for example, is "going along" with an education authority and town council plan to provide youth facilities in the neighbourhood of the church. Some of the church halls are already used by other social organizations—and at least one minister considers that, in any case, church organizations are becoming much less religious, and others say that this must be the case if they are to survive. The desirability of economizing by the provision of facilities on a larger scale is the main reason for favouring joint efforts. Most congregations seem to suffer from lack of space—again mainly where young people's activities are concerned—although it is generally agreed that future membership will probably depend more on leadership and on whether or not interests will move away from established organizations.

9.75. In the "general comments" section of the community centre questionnaire, the great burden of heating, lighting and maintenance costs, and especially rating, was mentioned. One centre now gets rating relief since stopping bingo sessions. Another secretary remarked on the demand for bingo by a section of the community, but the education authority has vetoed it.

9.76. From the questionnaire replies, several main points emerge:

- (i) Optimism about the future membership

of the organizations and groups varies from district to district, largely based on expected population increase.

- (ii) There is a general feeling in the Area that people are becoming rather apathetic or less interested in many traditional social organizations, and it would seem that church groups will have to continue to become "less religious" if they are to maintain membership. Determined efforts have to be made to attract and maintain the interest of young people, although uniformed organizations for children are expected to remain popular and expand as population increases.
- (iii) Lack of finance and suitable accommodation cause many problems throughout the Area and do much to hinder expansion.
- (iv) The distribution, type and size of premises required depend very much on the size, and on the age and socio-economic structures, of the residential areas as proposed for 1986.

### Conclusions

9.77. In the future it is almost certain that people will have more leisure time, and at more varied times, than at present, and it is hoped that they will use it wisely. It does not follow, however, that a doubling of the population in the Area, and more leisure time for all, will ensure that each organization will expand—secretaries and ministers are well aware of this. Interests change, often fairly rapidly, and in the Grangemouth/Falkirk Area at present several clubs are finding difficulty in attracting or retaining members. Since the range of activities, age structure and population distribution will continually change, so also will the range of organizations. Perhaps the majority of groups existing today will still exist in 1986, but there will be new ones (of the same, and new, types) and some will have ceased to function.

9.78. There is clearly a need for public provision of premises for accommodation, and many will not be able to afford to buy premises. The provision should be planned for the Area as a whole, integrated with other developments—housing, shopping and other leisure-time facilities—and thus it is recommended that a committee be set up for this purpose. It should be responsible for administration and finance (from a central fund) of social, recreational and cultural facilities in the entire Area, to achieve a balanced provision in new development areas and to reduce the existing imbalance between the various towns and suburbs (see recommendations in Section III).

Guided by the existing range of organizations, it is possible to state in general terms the sizes and types of premises that will be wanted—large halls for dances, games, meetings; rooms for smaller meetings; theatres or stages for amateur productions, and so on. While public premises cannot be tailor-made for each organization, each main type of premises should go a long way towards meeting the needs of a large number of groups, provided that care is taken

to ensure that there are adequate amenities, such as storage space and cloakrooms, and that the rooms/halls are comfortable, well lit, heated and soundproofed where necessary.

9.79. The question arises—and has already been briefly discussed—as to their distribution throughout the Area. Should all facilities be located in the town centres or scattered within the residential areas?

Each new development area in the region will be provided with a shopping centre,<sup>(1)</sup> which will be the focal point in each community, and this would seem to be the ideal location for a community centre. It was suggested in the report for the New Town of Hook that one community centre should be provided for a population group of up to 20,000 people. For the Grangemouth/Falkirk Area it is proposed to provide shopping centres to serve about 18,000 people. Thus, the above arrangement of one community centre in each shopping centre would comply with these ratios. Some, perhaps most, of the traditional community centres are run by a community association, with use of premises being restricted to members of the centre. In other community centres, while there is an association actively engaged in running youth clubs, dances, etc., halls and rooms can be hired by "outside" organizations for their meetings. It is more the latter type of arrangement that is advocated for the new development area centres of the Grangemouth/Falkirk Area—those responsible for the general functioning of the centre need not necessarily organize activities there. Accommodation would be available to any organizations wanting to use it. The emphasis would be on provision of the larger halls, a theatre or stage, a gymnasium perhaps (and a library), for which a central location in the community is desirable, but one or two smaller halls and rooms should also be included for the use of smaller groups or for small meetings. Kitchen, copious storage space and other such facilities should be provided in each centre, and of particular importance is the provision of adequate car-parking space in accordance with the capacity of the centre. By locating the new centres in the main shopping areas, use could be made in the evenings of the car parks provided for day-time shoppers. The centre would also be on the main bus routes and, therefore, easily accessible to everyone. However, outdoor facilities—playing fields, etc.—will generally have to be located on the peripheral areas of the urban development, since housing and industry will have greatest priority for land in the central areas.

New community centres will thus be intended primarily for organizations and activities and services for which a central location in the community is desirable—such organizations, for example, would include those with limited appeal which draw members from a fairly wide area. In the Grangemouth/Falkirk Area there are about twelve community centres and public halls (excluding the town halls), most of which will continue to be used. The Bonnybridge and Polmont Halls may have to be replaced and others improved or extended.

There is a great need also for small halls and rooms, outwith the town centres, for organizations of a more localized nature and for local branches of national organizations with a general appeal. Some could be grouped in small, district shopping areas, where the town area is large enough to necessitate these "district" centres. In some existing residential suburbs this grouped "district" would be difficult, due to the rather amorphous housing development (reflecting the hilly nature of the land), which has no really central or focal point. Hiring charges should be as low as possible, especially for small groups. Actual shortage of suitable accommodation at present, and expensive hiring charges for some premises, have forced many groups to meet in premises unsuitable regarding amenities, location, size, etc., and have hindered the growth of others.

9.80. As far as possible, use should be made of existing facilities and of those provided primarily for other purposes—schools, church halls, school playing fields, etc.—although existing accommodation in these is not always very comfortable, attractive or suitable. Church organizations are a most valuable asset to any community in providing important social services as well as leisure activities. Where new churches are established, they could perhaps be assisted in the building of church halls of a size commensurate not only with the range and membership of church organizations, but large enough to accommodate other organizations also. Alternatively, as has been suggested by several ministers in the Area, churches could build jointly-owned halls serving several churches, to provide more facilities in total than had each built its own hall, or help in the provision of halls for general use by church and non-church groups.

Primary schools will be distributed throughout the residential areas so that no child will have to travel more than about  $\frac{1}{4}$  mile to school—the standard recommended in the report for the proposed New Town of Hook. To economize on buildings, car-parking space, etc., far more use could be made of the facilities in these schools—the halls, classrooms, cloakrooms, for evening and weekend activities—the playgrounds for car parks or outdoor games. In some cases an additional hall or general-purpose room could be provided in the school, specifically for use by organizations. These school and church hall premises would be particularly valuable for use by children's and old people's organizations, which tend to draw nearly all their members from within one mile. Schools are already used for evening classes and education authority youth groups, and there seems to be no insurmountable reason why extra-school utilization should not be extended. In fact, there is progress at present towards making school facilities available to youth groups.

9.81. It must be remembered that many groups will still want to have their own accommodation, and where they can afford to do this they should not be prevented. This may be

(1) See Chapter 5.

particularly important in the case of young people, who like to have "a place of their own", however small and humble. Frequency of meetings is important in this respect—most groups meet only once or twice per week, but sports clubs, old people's clubs and Scout groups (including Cubs and Rovers) meet several times each week and thus shared accommodation presents many difficulties unless it is with a group meeting at a different time of day.

9.82. A major problem anywhere is how to cope with youth—especially those who do not want to "conform". This has been discussed in Sections II and III. And with the expected increase in the number of young families in the Area, more play and sports facilities—indoor and outdoor—will be wanted, and their use should be encouraged by the authorities. Ideally, these should be integrated, to provide a variety of facilities which young people could use—if possible, without having to join too formal an organization. But the success of youth organizations depends as much, if not more, on the quality and number of leaders as on the physical facilities, and this is borne out by the comments in the questionnaires—the general feeling that the main obstacle, and the most difficult to overcome, to the continuance or growth of many organizations is the "human resource" factor. Church organizations are very conscious of the lack of volunteers, and ministers in general nominate the quality of leadership as the greatest influence on membership.

### Summary of Recommendations

9.83. A committee should be set up to guide, assist and integrate the provision and administration of social, cultural and recreational facilities in the Area. The cost of providing, and subsidizing where necessary, indoor and outdoor facilities should be met from a central fund set up for the whole of the Area, to replace the existing system of individual towns and counties financing these from rates—a system which resulted in an imbalance of provision between different parts of the Area.

9.84. A variety of halls and rooms should be provided by the "public sector" for hire by social organizations, for private functions, and for any other people wanting to use them. Hiring charges should be kept as low as possible—especially for rooms for small groups and meetings—to enable all organizations to use them. If necessary, the premises could be subsidized from the fund, for hire at less-than-economic charges, in cases where an economic charge would be beyond the means of most organizations using them. This provision and subsidization of facilities would be the main form of public financial aid to organizations, although in special cases—where it was particularly desirable and where it would benefit the community in general—additional assistance could be given.

9.85. Ample site provision should be made for established groups to build their own premises and facilities—Scout huts, sports club-rooms and grounds, etc.—if and when wanted, to suit their particular needs.

9.86. Popular organizations with widespread membership should be accommodated locally, within the residential areas. Premises for these would include small public halls/rooms for hire, privately owned clubrooms, etc., and school and church premises for use by organizations. In the larger "town areas", district "centres" might be created, with one or two halls and premises grouped in the shopping areas.

9.87. Premises for the more specialized organizations—requiring larger "catchment" areas for members and audiences—should be located in the town centres, where they would be easily accessible. It is proposed that each town centre should have a community centre, incorporating rooms and large halls for hire, a theatre or stage, perhaps a gymnasium and/or swimming pool (see Section III) and a library (see Section V), in addition to the usual cloakroom and kitchen amenities.

9.88. It is important that attention be paid to such basic requirements as sufficient storage space (for all organizations using premises), comfortable seating, adequate heating, lighting and soundproofing, and car-parking facilities. These have been neglected in the past.

9.89. Maximum use should be made of existing buildings and future provision by adopting a policy of sharing them. This has already been recommended in Section III regarding recreation facilities. School halls and rooms should be used outside school hours, especially by organizations for children and young people. An extra "clubroom" could be incorporated in new school buildings. Churches could be subsidized to enable them to build halls of sufficient size and type to accommodate church and non-church organizations, where this would reduce the need to provide separate local public halls (at greater expense). Additional expenses for these modifications, and for employment of extra staff, should be financed from the central fund. The policy of sharing may present some administrative problems, but these are unlikely to be sufficiently serious as to prevent sharing altogether.

9.90. Particular attention should be paid to youth facilities in the light of the increasing proportion of young people in the population, the changing pattern of their leisure times and the social importance of helping them to use their leisure time beneficially. Leadership is as important as good facilities, and it is recommended that attempts be made to recruit more salaried, trained leaders and instructors for clubs and informal recreational activities.

## V

### Libraries in the Grangemouth/ Falkirk Survey Area

9.91. The library service in the Grangemouth/Falkirk Area falls into two main groups—that part provided by the burghs of Falkirk, Grangemouth and Bo'ness and that part provided by Stirling and West Lothian County Councils.

There are, therefore, five separate authorities providing library services in the Area.

9.92. Falkirk Public Library is the largest of the three independent libraries, serving a population of well over 30,000. One-third of the readers, accounting for 20 per cent book issue, reside outwith the burgh. It comprises a reference room, children's library and lending library, with a total book stock of 74,340 and total book issue of 477,731 in 1964-65 (see Table 9.11). As in the case of all public libraries, there is also close liaison with the Scottish Central Library for special requests. Although the book stock is regarded as quite satisfactory both in number and range of books, lack of space makes administration difficult at times and prevents further developments of the service, such as the provision of a record library and accommodation for lectures and exhibitions. As membership and issues per member are increasing, the need for library expansion is becoming more and more urgent. Shelf space is already too limited and not all books can be displayed. Readers, too, are complaining about the overcrowding in the lending department at peak periods. Several alternatives to extending the library have been suggested, but all have so far been rejected by the Council. These include the setting up of three service points in Camelon, Bainsford and the East Ward, and the provision instead of a mobile library in these areas.

9.93. Grangemouth is much more fortunate with its library buildings, since an £18,000 extension to Victoria Public Library was completed in January 1965. There are no branch libraries, but it is hoped that when the town grows to its proposed size of 27,000 one will be provided. The existing library is well placed in the centre of Grangemouth—on the main road near the shopping area. Serving a population of about 20,000, it has a membership of nearly 9,000 adults and 3,000 children. In Table 9.11 it can be seen that the book issue per member is notably higher than in the Falkirk or Bo'ness libraries. Between 1963/4 and 1964/5 issues rose by 750,000, along with a membership increase of 1,693. Apart from the basic lending service, accommodated in the lending, juvenile and reference departments, the library has also been used by the Toastmasters, and four years ago by an adult education class, but at present it is not used for any other activities.

9.94. Bo'ness Public Library (a Carnegie library) is the only locally operated and maintained library in West Lothian. Serving a population of at least 14,000, it has a membership of over 8,000. The book issue (70,833) for 1964/5 represented a ratio of only 8.8 per member. The library consists of adult and junior sections, reading rooms and a paper-back section, and £1,000 has been set aside for the establishment of a classical gramophone record library. The Library Committee have under consideration the provision of a mobile library to serve the outlying areas and handicapped readers. The Public Library adjoins the Town Hall and the Library Committee are responsible for the letting of the auditorium—reserved all year round for various activities. In recent years, with a marked increase in book issue, a progressive effort has been made to develop the library further into the form of an "art centre" for which, it is felt, there is a demand in the burgh. Unfortunately, the library is not now centrally situated, perhaps explaining the low book issue per member, and is not on a bus route, but included in the scheme for moving the town centre uphill to Douglas Park are plans for a new library.

9.95. The libraries in the Grangemouth/Falkirk Area provided by Stirling County comprise three full-time branch libraries—at Denny, Larbert and Bonnybridge—one part-time branch at Laurieston, six adult centres and two mobile libraries. In addition, there is a schools library service, in which Stirling County is well to the forefront in Britain by employing trained librarians in schools. Altogether, 10 secondary and 34 primary schools are served, and issues of books for 1963/4 amounted to 145,679 and 189,766 respectively. The total issue of the branch libraries in 1963/4 of 282,210 was an increase over the previous year (235,584), but total issue in the adult centres was lower than in 1962/3, mainly due to the large decrease at Pulmarston Institution. From the mobile libraries, serving the villages, 104,123 books were issued in 1964/5, compared with 99,017 in 1963/4.

9.96. West Lothian County Library has branches at Bo'ness and Bridgeness, with a total book issue of over 4,000 and membership of over 1,650 in 1964/5 (in the case of two schools, no returns were submitted). A mobile service has also been started in the county.

TABLE 9.11  
*Burgh libraries, 1964/5*

	Burgh Population (approx.)	Membership of Library		Book Stock	Book Stock per Member	Book Issue	Book Issue per Member
		Adult	Juvenile				
Falkirk . . . . .	36,000	18,000	7,000	74,340	2.07	477,731	19
Grangemouth . . . . .	20,000	9,000	3,000	42,102	3.5	305,675	25.7
Bo'ness . . . . .	14,000	8,000		22,000	3.1	70,833	8.8

*Source:* Statistics from the librarians of Falkirk Public Library, Bo'ness Public Library and Victoria Public Library.

9.97. In the Survey Area the library service is handicapped by a lack of staff, lack of finance, and inadequacy of buildings. Branch libraries, and especially the "centres", are mainly in school halls or small shop-sized buildings, and many are staffed by voluntary, untrained librarians. Regarding the branch libraries—for example that at Denny, while occupying its own premises and having a trained librarian, is situated in the new housing estate in the west of the burgh, at a distance from the shopping centre. Shelf space is very limited, and there is no reading room or accommodation for other cultural services and activities. At Bonnybridge, on the other hand, there is a new purpose-built library with a spacious and well arranged room, including a children's section. The library can be used for meetings also, seating up to about 100 people, and attempts are being made to hold evening classes there.

9.98. A major problem that has to be faced by the county library authorities, and indeed by all authorities concerned with the social, cultural and recreational life of the Area, is that of providing a good service in the rural areas and in the villages, many of which have no focal point—no shopping or cultural centre. To the south-east of Falkirk, for example, the Laurieston branch and the part-time "centres" are not well located with regard to the present population distribution. Thus, it was in an attempt to provide a better service to a large section of the rural community, and to cater for people in outlying areas where there had been no service at all, that the mobile service was inaugurated in 1960, and later a second mobile van was bought. West Lothian has also started a mobile library service. In 1959 the cost of running a mobile library for about 12,000 people was estimated at £1,534 per annum, including the wages of the trained librarian and driver-librarian, in addition to £2,400 for the purchase of the van. By comparison, the cost of upkeep of Kilsyth branch library, serving 10,000 people, was £1,600 per annum. But there are still people in the Area not adequately catered for, and lack of finance hampers the situation.

9.99. From the above summary it may be concluded that whilst efforts are being made to improve the library service, the present provision is inadequate. With the constantly changing population distribution, optimum location of service points needs continual reassessment.

9.100. It is the policy of the librarians not only to try to satisfy the rising demand for books, but to encourage reading amongst those who read few or no books at present. For this, fully trained librarians are needed to advise readers. It is also generally felt that the libraries should be cultural centres where many and varied activities, both social and educational, could be based. In the report of the Working Party on "Standards of Public Library Service in England and Wales, 1961", it is stated that "Public Libraries, since their inception, have been one of the principal centres of cultural life in the community. The extent to which this has been the case has depended not only on the availability of other cultural facilities, but on a number

of factors, notably the attitude of the library authorities and the facilities the library buildings have to offer". "... Activities such as lectures, discussions, story hours, etc., which distract people, if only for a short space of time, from other mass media are fulfilling a distinct and valuable social purpose".<sup>(1)</sup> At a later stage in his book, H. Jolliffe points out that many libraries "sponsor societies dealing with art, ballet, chess, debate, philately, poetry, drama, natural history..."<sup>(2)</sup> and so on. "It is obviously advantageous if the library possesses the facilities for extension work within its own walls and, indeed, many libraries do include lecture halls and meeting rooms, and a few are fortunate enough to possess theatres, exhibition halls and special rooms for extension activity with children".<sup>(3)</sup> It is clear that in the Survey Area at present the library premises are in most cases completely inadequate for this type of service, although the need for such facilities is fully realised. In fact, libraries tend to be cramped for normal use, and much inconvenience is caused when schools have to be used. Much effort has been and is being made to improve the library services, but this is very much hampered by the inadequate resources of the authorities providing the services.

9.101. According to the standards of public library service advocated in 1961 for England and Wales, no person in an urban area should normally have to travel more than one mile to a library. In non-urban communities having a natural centre, a library open for 30 hours or more per week should be provided for populations of over 4,000, a library open for 10-30 hours per week for populations of 1,000-4,000 and a staffed centre or mobile library for communities below 1,000. These standards cannot be rigorously applied, as much depends on the population distribution. This is true of the Survey Area, where communities are like suburbs with little in the way of focal centres and therefore where the choice of sites for libraries is difficult.

## Recommendations

9.102. With the proposed urban development of the Area, an improvement in and extension of existing facilities will certainly be necessary. At least one full-time branch library is required in the following areas: the Brightons/Palmont area; the new urban areas of Carronshore, Glenbervie and Greenbank. Furthermore, library facilities in Falkirk especially and in the other towns will have to be increased, not only in view of the proposed population growth, but in order to cater more adequately for the existing demand.

It is recommended, therefore, that much more finance be allocated for the development of the library service in the Area—in increasing the number of libraries, and in widening the range of cultural and social activities provided by the libraries.

<sup>(1)</sup> Harold Jolliffe, *Public Library Extension Activities*, London, 1962, chap. 2, p.24.

<sup>(2)</sup> *Ibid.*, chap. 5, p.97.

<sup>(3)</sup> *Ibid.*, chap. 4, p.76.

9.103. As H. Jolliffe has said:<sup>13</sup> "Where the library is remote from other community facilities, its own services are easily overlooked or often ignored because of the time factor". The main libraries should, therefore, be located as near to the shopping and office areas as possible—in the town centres. They would then be easily accessible to everyone, on the main bus routes, with car-parking space available, and a visit to the library could be made on the way to or from work or shopping instead of involving a special journey.

The need for community halls in the town centres of the Area was emphasized in Section IV of this Chapter. There it was suggested that community halls should be a focal point for the social life of each town area. It is recommended, therefore, that each suite of halls and rooms should incorporate a library.

Two alternative schemes are possible: (a) the halls could be regarded as library "extension" premises. Use of halls would not, of course, be restricted to activities directly organized or sponsored by the library, but would be available for hire by any organization or group of people; (b) the library could occupy part of the community halls, independently administered and financed, with sufficient room for the basic library services, but able to hire some of the other rooms/halls for extension work.

In both schemes the community halls would, of course, have to be large and comprehensive enough to accommodate the demands of the library and its extension work, in addition to the demands of local organizations. Either way, it is hoped that some economy on facilities would be afforded by sharing, and thus making fuller use of premises, than by building separate library premises and community halls.

9.104. Other parts of the Area—such as the villages between Banknock and Denny—are perhaps best served by the mobile library due to their linear form along the main road. Airth, Shieldhill, California and other villages are too small to justify a full-time branch library, and the mobile service, with its "economy" on the book stock and trained staff, probably provides a better service than would small, part-time branch libraries or adult centres.

9.105. With the emphasis on education in Britain today, and the need to find worthwhile ways of spending the increasing amount of leisure time, the provision of good library and cultural and recreational facilities must not be underestimated or considered in isolation. These form a very significant part of the infrastructure and are important in an appraisal of the Survey Area's attractiveness as a growth area.

being of a community has been borne out by experience in many parts of the country. In nearly every article on new housing estates and new towns there is mention either of the success of good amenities in helping to promote a community spirit among the residents or of the social problems—juvenile delinquency, general boredom or loneliness—in areas which lack these amenities. It is necessary, therefore, that full account be taken of the social, recreational and cultural aspects of life when planning for the development of the Grangemouth/Falkirk Area. Facilities for these must be integrated with all other types of development if an attractive urban area is to be achieved.

9.107. In each section of this Chapter the main task has been to formulate the principles which should be adopted when planning the leisure facilities of the Area. More specific proposals cannot be made until the detailed plans for the Area are being drawn up. The existing pattern of leisure-time interests, the trends in membership of social organizations, and the known policies of authorities providing facilities, do serve as guides to future requirements. However, modifications must be made to any projection for the 1986 population level, to take account of the changing age structure and distribution of the population and the changing pattern of leisure times (resulting from an increasing amount of "shift work"). Tastes in entertainments and other leisure activities will change too, and with greater mobility and willingness to travel for many entertainment, cultural and recreational facilities, predictions of the 1986 demand must therefore be general rather than specific. A certain amount of flexibility is necessary, especially in planning the "town centre" facilities, which tend to be of the larger, more specialized, more expensive types, for which demand is less predictable.

9.108. To achieve a balanced distribution of facilities in the Area as a whole, to relate these to the general pattern of urban development and to guide, assist and integrate the development of social, recreational and cultural life, it is proposed that a committee be established, and a central fund inaugurated, to replace the present system of individual burghs and counties in the Area being responsible for their provision and financing of facilities.

9.109. Good facilities will provide the framework essential for the successful development of leisure-time interests in the Area, but they cannot do more than this. The quality and vitality of social, cultural and recreational life in the Grangemouth/Falkirk Area in 1986 will depend ultimately on the initiative, energy and enthusiasm of the people living there.

## VI

### Summary

9.106. Throughout this Chapter it has been emphasized that the leisure-time interests and activities have a most important role in the life of any community. That they not only reflect but greatly influence the character and well-

<sup>13</sup> H. Jolliffe, *op. cit.*, chap. 4, p. 73.



9.110. Regarding the significance of the "sample" group of organizations, the following points should be noted:

- (a) Questionnaires were sent to secretaries of all social organizations (apart from Masons) for which names and addresses were obtained—from local guide-books, town clerks, libraries and valuation rolls. It is likely, however, that not all groups have been covered as lists may not have been fully comprehensive. 195 of this first type of the questionnaire were sent out, and 95 were completed and returned—a response rate of 51 per cent. In addition, two secretaries wrote letters giving some information and seven other questionnaires were returned either only partially, or not, completed. In these nine cases at least, the questionnaire was either not applicable or the group had ceased to function. The response rate varied according to the region, the highest rate being Banryhedge (69 per cent) and the lowest the North (38 per cent).
- (b) Questionnaires of the second type were sent to ministers of all congregations of the Church of Scotland, United Free Church of Scotland,

Scottish Episcopal Church and Roman Catholic Church in the Area. Of the 60 sent out, 23 questionnaires were returned fully completed—a 38 per cent response. Unfortunately, none of the six in Denny nor two in the extreme South-West replied. The highest response rate was from the North (including Larbert)—67 per cent. Note that Sunday Schools and Youth Fellowships were not included in the Survey and that some ministers excluded choirs and other groups that most ministers included in their list.

- (c) Eleven questionnaires of the third type were sent to community centres and public halls. Although only four were completed and returned, some information was obtained from other sources relating to one or two more centres.
- (d) Most organizations related directly to health and welfare or education were excluded from the Survey. But the W.V.S., Red Cross and Health Clinic Young Mothers' groups were included. Thus, education authority youth groups, for example, which provide a valuable social as well as educational function, have not been investigated.

TABLE 9.12  
Social Organizations  
Response rate to questionnaire  
By Area and by Type of Group

Area	Number sent out	Returned not completed	Returned Fully Completed						Percentage response*
			Uniformed youth	Non-uniformed youth	Adults (special interest)	Adults (service)	Old people	Workers' recreation	
Falkirk	62	5	3	1	18	11	—	1	30
Glasgow	48	3	4	1	6	3	1	2	19
Bo'ness	16	—	1	—	2	—	—	3	9
Denny and Dunfermline	17	1	1	1	2	3	—	2	9
Bonnybridge	15	—	1	1	3	1	1	—	9
Leith, etc.	17	—	—	—	4	—	1	—	9
North	8	—	1	—	—	—	—	1	5
South-West	4	—	—	—	1	—	—	—	2
Paisley, etc.	12	—	1	—	1	1	2	—	5
All areas	195	9	12	4	37	19	5	9	56

\* 'Number returned fully completed' as a percentage of 'the total sent minus those returned incomplete'.

Percentage of total response in each type of group

Type of group	Percentage
Uniformed youth	12.6
Non-uniformed youth	4.2
Adults (special interest)	38.9
Adults (service)	20.0
Old people	5.3
Workers' recreation	9.5
Sports	9.5
All groups	100.0

TABLE 9.13  
Church Organizations  
Response rate to questionnaire  
By Area and by Type of Group

Area	Number sent out	Returned, fully completed	Percentage response
Falkirk . . . . .	17	6	35
Grangemouth . . . . .	10	6	40
Bo'ness . . . . .	6	3	50
Denny and Dunipace . . . . .	6	—	—
Bonnybridge . . . . .	4	1	25
Larbert and North . . . . .	9	6	67
South . . . . .	2	—	—
Felmont, etc. . . . .	6	3	50
All areas . . . . .	60	23	38

This gives a 38 per cent response of fully completed questionnaires, covering 132 organizations.

Note that each organisation and section is treated separately, e.g. Scout group, with Cubs and Rovers=3 organizations (unlike the 'social' organizations). Some ministers include groups like the choir that others miss out, thus more than 132 organizations will exist in the total of these churches. Sunday Schools and Youth Fellowships are not included.

Type of organization	Questionnaires returned, fully completed	Percentage of total response in each type of group
Uniformed youth . . . . .	57	43
Non-uniformed youth . . . . .	14	11
Adults . . . . .	55	42
Large-space users . . . . .	6	4
All groups . . . . .	132	100

Note: Total number of church organizations in the Area is unknown.

TABLE 9.14  
Membership of social organizations  
By Type of Group

Type of organization	Less than 20 members		20-50		50-100		100-200		200-500		More than 500 members	
	T	A	T	A	T	A	T	A	T	A	T	A
Uniformed youth . . . . .	1	1	3	4	6	6	2	1	—	—	—	—
Non-uniformed youth . . . . .	—	—	3	3	1	1	—	—	—	—	—	—
Adults (special interests) . . . . .	5	8	16	20	11	7	7	2	—	—	—	—
Adults (service) . . . . .	5	9	9	7	2	1	1	—	2	—	—	—
Old people . . . . .	—	—	—	1	—	4	3	—	1	—	1	—
Works' recreation . . . . .	3	4	1	2	—	1	1	—	1	—	3	—
Sports . . . . .	—	6	2	1	2	—	3	—	2	—	—	—
All groups . . . . .	12	20	34	38	22	20	17	3	6	—	4	—

T—Total membership

A—Average attendance

TABLE 9.15  
Membership of church organizations  
By Type of Group

Type of organization	Less than 20 members		20-60		60-100		More than 100 members	
	T	A	T	A	T	A	T	A
Uniformed youth . . .	9	13	41	42	7	2	—	—
Non-uniformed youth . . .	—	3	9	8	3	2	2	1
Adults . . . . .	8	16	51	52	9	3	6	2
Large-space users . . . .	—	2	6	4	—	—	—	—
All groups . . . . .	17	34	67	66	19	7	8	3

T—Total membership      A—Average attendance

TABLE 9.16  
Social Organizations  
Distance between home and meeting place  
By Area and by Type of Group

	Distance Travelled by Most Members		
	Less than 1 mile	1-5 miles	More than 5 miles
<i>Area</i>			
Falkirk . . . . .	13½	11½	3
Glasgow . . . . .	10	6½	1½
Bo'ness . . . . .	6	3	—
Deans and Dunipace . . .	5	2	2
Bornybridge . . . . .	7	2	—
Easton, etc. . . . .	5	2	—
North . . . . .	2	1	—
South . . . . .	1½	½	—
Polmont, etc. . . . .	4	1	—
All areas . . . . .	53½ + ½	28½ + ½	6½
<i>Type of Group</i>			
Uniformed youth . . . . .	9	3	—
Non-uniformed youth . . .	2	1	1
Adults (special interests) . .	20½	12½	2
Adults (service) . . . . .	6	7	2
Old People . . . . .	5	—	—
Workers' recreation . . . .	5	5	1
Sports . . . . .	6½	2½ + ½	½
All groups . . . . .	53½ + ½	28½ + ½	6½

Note: '½' refers to an even split among 2 distances—

e.g. 10 members less than 1 mile  
10 members 1-5 miles  
5 members more than 5 miles

would result as—  
less than 1: ½  
1-5: ½  
more than 5: —

TABLE 9.17  
*Social Organizations*  
*Premises thought to be inadequate for the future*  
*By Area, Type of Group and Type of Premises*

<i>Area:</i>	
Falkirk . . . . .	4
Grangemouth . . . . .	5
Bo'ness . . . . .	5
Denny and Dundee . . . . .	1
Bonnybridge . . . . .	3
Larbert . . . . .	3
North . . . . .	1
South . . . . .	1
Polmont . . . . .	2
All areas . . . . .	25
<i>Type of Group:</i>	
Uniformed youth . . . . .	5
Non-uniformed youth . . . . .	2
Adults (special interests) . . . . .	7
Adults (service) . . . . .	5
Old people . . . . .	—
Works' recreation . . . . .	3
Sports . . . . .	3
All groups . . . . .	25
<i>Type of Premises:</i>	
Hotel . . . . .	1
Restaurant/Cafe . . . . .	2
Sports Pavilion/Clubhouse . . . . .	3
Church Hall . . . . .	—
School . . . . .	3
Town/Public Hall, Community Centre . . . . .	3
Scout/Guide Hut/Hall . . . . .	3
Other Hall . . . . .	8
Rooms/Houses . . . . .	4
All premises . . . . .	27

*Note:* Numbers refer to number of groups and not to number of premises.

TABLE 9.18  
Social Organizations  
Finance

Type of group	Expenses covered by subscriptions	Other sources of finance				
		No other	Fund-raising, including profits on tickets, and proceeds from concerts, sports matches, etc.	Bar profits	Grants from councils, education authority, etc.	Donations
Uniformed youth	1	1	11	—	—	—
Non-uniformed youth	—	—	2	—	1	1
Adults (special interests)	15	0	25	—	2	2
Adults (service)	12	6	11	1	2	1
Old people	—	—	4	—	4	—
Workers' recreation	—	—	5	3	—	4
Sports	2	1	6	2	—	1
All groups	31	16	65	6	9	12
						9

Note: Where groups obtain funds from more than one source, all sources are indicated.

## Public Investment

J. T. HUGHES

10.1. The development of Grangemouth/Falkirk will entail considerable public investment. The population will, it is proposed, double within a twenty-year period, an increase of 110,000 people; a further increase of 70,000 is envisaged as likely to follow between 1965 and 2000. In this Chapter, however, we shall not be concerned with this latter period for a number of reasons. Since it is more than twenty years in the future, any attempt to predict many of its consequences will encounter so many uncertainties as to make detailed study largely a waste of time. The pattern of development in the post-1965 period will be so dependent upon the success of the current plan as to make prediction more than normally difficult. On the other hand, it would be unwise to ignore the fact that after the initial period of heavy immigration, development will continue at almost the same pace by virtue of the natural increase of population. In this respect, Grangemouth/Falkirk differs from Livingston, where there will be a fairly sharp reduction in the rate of growth after the period of rapid build-up.

10.2. Investment may be studied from two standpoints—(a) costs, and (b) returns. Both aspects are necessary to a full appraisal, but in public investment decisions there is an unfortunate tendency to think mainly, if not wholly, of the costs, particularly of their implications for taxation. It will be clear to the most humble consumer that "value for money" depends upon both sides of the benefit-cost equation. It will be evident from Section IV that it is not easy to measure the benefits from investment; but some important points emerge from the attempt. A major reason for this examination of public investment, however, is not a narrow consideration of the implications of the considerable capital expenditure involved. This Chapter will throw some light on the wider problems of this region and regional development projects similar to this one.

10.3. As will be clear from other contributions to this Report, the main aim is not to lay down a blueprint for the region twenty years hence. Rather the several contributions, not least those of the economists, have attempted to demonstrate some of the principal problems in a development scheme of this kind and to indicate some of the solutions. Section III of this Chapter clearly falls into that category. However, the

main contribution of this Chapter is more general than that. It is an attempt to approach the problem of the public investment programme not from a "financial" standpoint but from a more basic appreciation of its use of resources, which is ultimately the constraint upon the scale and speed of development. In this context efficiency is not a matter of penny-pinching but of minimizing the use of scarce building, planning and other resources. Assuming a given quantity of resources is allocated to the development of Grangemouth/Falkirk, say by a budget limitation, the more efficiently they are used the greater will be the scale of development.

10.4. Efficiency in the public sector is an elusive concept. It is further complicated by the political undertones in much of the discussion. A number of people will start from the extreme view that all public expenditure is wasteful. If pressed, they will mention bureaucracy or the absence of the profit motive, but underneath they will probably be found to be opposed on other grounds to collective action. We must try to lay such preconceptions aside. Firstly, we should be clear on what efficiency is. Efficiency is the provision of a service at the least cost in terms of national resources. A problem arises when we try to define a "service"; this entails describing in detail the standard of provision. There are two relatively "simple" optimization problems: (a) of providing a given service at least cost, or (b) of providing the best service at a fixed cost. Where both the quality of the service and the total cost may be varied, a highly complex problem exists. The problem is made almost impossible when it is difficult to compare the standard of provision against cost, because there is no quantitative measure of the former. The non-quantifiable and indirect nature of the benefits is probably why the service became the concern of a public authority in the first place. What value, for example, does the consumer or society place on a second refuse collection per week?

10.5. One of the major tasks of this Chapter on public investment must be to show the consequences of the recommendations embodied in the Grangemouth/Falkirk Report. It may be expected that this Chapter will answer the question: "Will this be another paper plan or is it feasible?" To assess the feasibility of these proposals extending over a period of twenty years is an impossible task. In Section II the

relationship between planning variables and public investment is reviewed, and in Section III the major constraints upon expansion considered. There are no insuperable obstacles to the fulfilment of the Grangemouth/Falkirk Plan, provided that the executors of the Plan are willing and able to pursue the appropriate policies and make the appropriate choices to overcome the physical and financial constraints. It may be said with some confidence that the Plan is not feasible unless serious consideration is given to removing the limitations outlined in Section III. Without doubt, the fulfilment of the proposals will impose a considerable burden on real and financial resources; Section IV reviews the ways in which this expenditure may be justified. Section V takes a closer look at the main determinants of cost. It does not come to an estimate of cost in money terms, but discusses the principal variables and lays stress on the variation in cost which may be caused by changes in the scale and standard of development. Section VI takes up this point that many issues are, and ought to be, unsettled at this stage; it attempts to outline a prescription for taking these decisions in the light of their economic consequences. In other words, it is impossible at this point of time to plan the public investment programme, but essential to begin to plan the programme along the lines outlined in this Chapter.

## II

### Public Investment and Other Planning Variables

10.6. It will be useful, firstly, to take a look at the relationship between public investment and other variables in the planning process. Clearly, the size of the population will be the most important determinant of investment expenditure. One may in a sense stop there without thinking further. In estimates of cost, the data will be so unreliable that one may take a standard capital cost per head and multiply by the number of heads. But the composition and structure of the population is important. The age, sex and marital composition will be important determinants of household formation. Small households generally lead to more expensive *per capita* costs of investment. Age structure will help determine the demand for educational facilities, health and welfare services.<sup>(1)</sup>

10.7. The socio-economic class structure of the population, which is largely determined by the occupational structure, will also be important. If there is a weighting towards the middle or upper social class groupings, this will have consequences for the standard and type of housing.<sup>(2)</sup> In education it will mean that there will be a greater proportion of children remaining at school for higher education; it could mean a demand for private education. Usually, income level is related to occupational structure, but many growth industries will pay relatively high wages to employees who would be accorded a relatively low occupational status by the Registrar-General and, therefore, placed in a lower social class. The social class structure and

the nature of the industries in an area will, therefore, determine income levels. This may create a relatively high demand for shopping and town centre facilities, for roads (through increased vehicle ownership), entertainment and recreational facilities.<sup>(3)</sup>

10.8. The physical aspects of the community will have implications for public investment. Topographical or geological difficulties may lead to higher costs of building or higher costs in the provision of services such as roads, sewers, water, drainage.<sup>(4)</sup> Other things being equal, the large, urbanized community proposed for the Grangemouth/Falkirk Area in this Report will lead to economies in the provision of services. However, large urban groupings tend to offset these advantages by increased requirements. After a certain size urban areas generate a demand for facilities like libraries, recreational and entertainment centres.<sup>(5)</sup> Independent of the size of the community, the density of development may have some influence on public investment. High densities tend to lower the overhead costs of providing the services but to raise the direct costs of housing, especially if the increased densities require multi-storey blocks. High densities often generate more investment in social facilities, for example, in formally designed children's playgrounds, communal gardens and piazzas, where private provision of these facilities in gardens and waste ground is difficult.

10.9. The nature of the industry will, as has already been noted, have important consequences for the level of income. It will also affect the provision of public capital investment more directly. A further growth of large water users like petro-chemicals will be an important consideration in the provision of water supply. Many such services to industries are charged on an individual basis and not on the rate fund, but the initial burden of finding funds and resources for investment in capital facilities will remain on the local authority. Generally manufacturing industry will require more public investment in local facilities and power services than will service industries.<sup>(6)</sup>

10.10. It is desirable, therefore, that this Chapter be read with the proposals of the rest of the Volume in mind. On an oversimple view, the requirements of public investment will be determined by recommendations elsewhere in this Volume. Yet, if, as will be argued later,<sup>(7)</sup> there is a need for proper appraisal of public investment as a vital function in the development of Grangemouth/Falkirk and similar areas, all other planning proposals must be checked against the overall requirements and resources in the public investment field. Seen in this light, appraisal of public investment should be a central function in the planning process and the

<sup>(1)</sup> See Chapter 8.

<sup>(2)</sup> See Chapter 7.

<sup>(3)</sup> See Chapters 4, 9.

<sup>(4)</sup> See Chapter 11.

<sup>(5)</sup> H. Braun, *City Expansions in the United States*, New York, 1959, p.14.

<sup>(6)</sup> See Chapter 6.

<sup>(7)</sup> Paragraphs 10.47 and 10.48.



main way in which economic considerations may be introduced. For this reason and others, which will emerge in the Chapter, it is desirable not only to preview the likely problems and opportunities in the provision of economic and social overhead capital (as will be done in the following sections), but also to have a continuing review in the administrative machinery which will be responsible for the implementation of these proposals.

### III

#### The Cost of Investment

10.11. To say that all investment implies a cost may appear a rather pedantic, long-winded way of saying that some public body or person will have to pay for the new schools, houses, sewers which are constructed. Raising the finance, however, is only one aspect of the cost. This will perhaps be clearer if we think of the fundamental nature of a cost. The cost in real terms of a certain course of action, such as buying a loaf of bread, is the value of the other goods which one foregoes in order to make the purchase of bread. In a small transaction like buying a loaf, the "price" of the loaf or its cost in money terms is a good enough measure. It is clear to most people that if they spend part of their money income on one item, they cannot buy other goods which they might have liked. If, on the other hand, someone wanted to make a purchase of bread equivalent to a whole day's output of the British bakery industry, then he would have to take into account other factors such as the capacity of the industry and its physical ability to expand output. The industry, for its part, would wish to know whether this extra demand was temporary or permanent. The development of Grangemouth/Falkirk will imply a sufficient size of increase in the demand for houses, schools, etc., as to necessitate taking a wider view of the costs involved, and of the resources which will be used in relation to what will be available.

#### Physical limitations

10.12. The economist is well aware that the possession of funds does not automatically enable one to command immediately goods and services. Investment projects, in particular, have been retarded by bottlenecks in the construction industry. A form of inflation occurs. If the demand on other industries proves greater than supply, prices will tend to rise in order to discourage orders. Orders upon the building industry are usually placed so far in advance of production and the period of construction is so long that it is some time before it is apparent that the industry cannot produce the output ordered from it. The result is that the time taken to complete existing projects is extended so that some or few of them are completed by the date promised. It may be thought that the rational course would be to stop new starts and concentrate resources on fewer projects. It will be fairly obvious why no contractor would take this drastic course of action; in any case, he will probably hope that some extra men will appear

during the progress of the project which will enable him to complete it, if not on time, at least not too far behind. In this process of time inflation it is unlikely that the projects which should have highest priority will, in fact, receive it. Further inefficiency will result from the slow progress on a large number of sites, tying up capital equipment and discouraging the application of new methods. It is also important to bear in mind the quantity of national resources tied up in partly finished houses, schools, etc., resources in a limbo between being available for alternative uses and yielding productive services. This burden of "frozen" capital will not be fully borne by any body but by the community as a whole.<sup>(1)</sup> It is present in all investment projects, but is especially important in public investment where the "investment period" is so long.

10.13. Another source of delay may arise from the shortages in the professions associated with the building industry—architects, planners, surveyors. These have received relatively little attention compared with the building industry, more narrowly defined to mean that part concerned with the actual construction of the building. The actual construction may often take less than one-third of the total time from drawing-board to completion.

10.14. The main aim of an economic assessment of investment is to minimize the cost. As was pointed out earlier in this Section, however, there is an even more fundamental criterion. The underlying aim is to minimize the use of national—or regional—resources, to develop this Area by making the most efficient use of economic resources, land, labour and capital. Although this combination will sometimes be determined by minimizing money costs, in some respects the price mechanism will not reflect the real cost of using a particular resource. For example, one type of labour may be in temporary or chronic short supply. The shortage of skilled labour is a general constraint on economic expansion. In the public investment sector, skilled building labour is a major constraint. The pattern of development chosen ought, therefore, to bear in mind the need for economy in the use of that particular resource.

#### Conclusion

10.15. It was recommended in the Lothians Report<sup>(2)</sup> that industrialized methods of building should be applied by the construction industry. These arguments now apply in the development of Grangemouth/Falkirk with even greater force. Eventually, these methods will reduce the costs of construction. Since this will be in the long term, it is important to take a long view of the problem. It would seem certain that the adoption of industrialized methods will reduce the average costs of housing, compared with traditional methods, over a twenty-year period. Wider benefits will be derived from the developmental experience in pioneering this

<sup>(1)</sup> See paragraphs 10.55 and 10.54 of this Chapter.

<sup>(2)</sup> *The Lothians Regional Survey and Plan*, Volume I, H.M.S.O. Edinburgh, 1966, Chap. 15, paras. 15.12 to 15.21, 15.45.

type of building method and from taking part of the load from the traditional sector.<sup>(1)</sup> Further, there are costs not only of building 1,000 houses, there are also costs attached to not building these houses. Failure to complete a programme of housing, for example, may disrupt the recruitment programme for industrial expansion. The costs of non-completion apply to other types of building. Failure to complete schools at the same time as houses may mean considerable disruption of children's education. Like many other similar examples, much of this is unquantifiable. Nevertheless, real social and economic losses result. The size of the public investment programme and the methods of construction in Grangemouth/Falkirk ought to be decided after assessment of the demand on and the capacity of the construction industry in Central Scotland. In the case of individual projects, the consideration of tenders (or whatever form the appraisal takes) should take into account the ability of the contractor to complete the project on time and avoid the dangers of disrupting the programme.

#### *Financial limitations—public or private*

10.16. In many ways these real limitations of constructional resources will be crucial to the investment programme. One must not, however, underestimate the problem of financing the investment. The first and major task in approaching this question will be to assess the total finance required to provide social facilities in the Grangemouth/Falkirk Area. Section V will be mainly devoted to the problems associated with this estimate. Secondly, the sources from which the money comes to finance the provision of the facilities will be important to the rate of development and, perhaps, for the nature of the facilities themselves. The main issue in this context is the proportion to be borne by private and public bodies. Usually, the body which finances the project will be responsible for running it, so that the question of finance is subsidiary to the efficient operation of the service. It is worth noting, however, that there are many gradations possible between wholly private or wholly public ownership. Although a local authority may build central area facilities, a shopping-cum-social centre, it may lease the shops to private companies or individuals. Alternatively, a property development company may undertake comprehensive development which includes housing for the local authority. Such hybrid forms of development make it difficult to distinguish between the private and public sectors in local development, particularly in central area facilities. This complication will be particularly relevant when considering the proposed redevelopment of central Falkirk. Full consideration should be given to the use of such forms of ownership wherever possible. Public versus private ownership is a thorny problem. The solution ought to strike a balance between several factors:

- (a) The need to use private funds to supplement the resources of the public sector.
- (b) The organization of the private sector may be more suited to calculated risk-

taking (which may result in profits or losses).

- (c) The public authority requires to have sufficient control not only to prevent development against the public interest, but to promote and initiate developments which it considers desirable.

Research is required into methods by which this may be achieved, especially into satisfactory, and unsatisfactory, solutions reached by other local authorities.

10.17. There are two areas of investment policy where the balance between public and private finance and control is important—in housing and in central area development and redevelopment. The example of central areas has been mentioned above. The issues related to housing have been argued in the Lothians Report<sup>(2)</sup> and are further considered in Chapter 7 of this Report. Briefly, it was argued in the Lothians Report that there could be expected (and ought) to be a greater proportion of privately financed housing than in Scotland generally or Scottish New Towns. More important, there ought not to be a sharp dichotomy between the two types, but a spectrum of tenures providing a greater choice in arrangements for finance. It may be argued that an increase in the proportion of owner-occupation is socially desirable. This may or may not be true. The major *assessis* reason for encouraging private housing and other types of public-private types (e.g., housing associations) is that by tapping other sources of finance the total rate of new house-building could be increased. An important factor in determining the pattern of housing will be the rental policy of the local authorities. This question is rather more complex in Grangemouth/Falkirk than in Livingston, since there are a greater number of housing authorities. Since rental policy will have important consequences for the demand for private housing, there ought to be discussions at an early stage between the local authorities in the Area with a view to standardizing and co-ordinating housing and rental policy.

10.18. Naturally, private capital will not be directed to projects where there is no prospect of profit. But local authorities in Grangemouth/Falkirk, or a development body for the Area, should give thought to ways in which they might persuade private firms to co-operate in furthering the aims set out by the regional consultants, including methods of sharing the cost as suggested above.

#### *Financial limitations—public finance*

10.19. There will, of course, be an irreducible minimum which will have to be met from the public purse. Since most of the expenditure with which we are concerned in this Chapter is investment, the bulk of it will be met by borrowed funds and not directly from current revenue. Borrowing will, however, have impli-

<sup>(1)</sup> An industrialised building sector would also attract some of the resources of the traditional sector such as labour.

<sup>(2)</sup> *Lothians Regional Survey and Plan*, op. cit., Volume I, chap. 15, paras. 15.32 to 15.42, 15.46.

cations for current revenue since interest charges and perhaps capital repayment will have to be met from that source. The rate of expenditure, therefore, may be limited by two considerations:

- (a) There may be a limitation on the volume of borrowing by local authorities because, for example, the market in fixed interest securities is weak. We cannot argue that Grangemouth/Falkirk should be given absolute priority, but it ought to be given favourable treatment.
- (b) The annual interest payments and costs of operating the services may add such a burden to local rates that it places a limit on the rate of expansion.

The net amount which will be required from local taxation will be determined by a number of factors. Part of the expenditure will be met directly by the central government. The cost of the road programme will be met insofar as the respective roads carried "through" traffic. The proportion met by the central government varies from 100 per cent to 25 per cent; the grant being dependent on the classification of the road.<sup>(1)</sup> The net cost of housing would be reduced by the central government subsidies and, under present legislation, by a contribution from Glasgow Corporation, or other "overspill" authorities, in the case of "overspill" families. In addition, there are general grants from the central government. On average, the local authorities would, under existing financial arrangements, have to meet approximately 50 per cent of the total annual cost of servicing the debt and current expenditure.<sup>(2)</sup>

### *Financial and administrative reform*

10.20. Without doubt, this will throw a heavy burden upon the rating system, since there will be a substantial lag between undertaking expenditure and the creation of rateable value to broaden the base of the local tax system. Even without this lag, local authorities which have undertaken development and redevelopment schemes have found it an expensive business. If development, as will be proposed, is concentrated on a part of the Area at each stage of the programme, the burden will become even greater since one or two local authorities at a time will have to bear the burden of additional taxation. To some extent the existing ratepayers will receive additional benefits from the provision of additional amenities; an increased level of expenditure would in any case have been necessary to improve and redevelop parts of the Area even without the expansion proposed in this Report. It would appear, however, that this expansion will require such heavy expenditure that hardship will result and that consequent unpopularity may retard the pace of development. What, then, may be done to improve the financial arrangements?

10.21. As the whole question of local government, and presumably taxation, in Scotland is to be examined by a Royal Commission, it would be foolish to attempt in a few paragraphs a task which will be the subject of a lengthy inquiry. The result of that inquiry may be a

radical change in the structure of local government and thereby its financing. Short of that, there are a number of measures which will be desirable. Since many of the benefits from this expansion will accrue more widely in Central Scotland, consideration might be given to taking a greater proportion of the burden upon the central government. The financial burden will be such that it will be necessary to ensure that as broad a tax base as possible contributes to the local revenue. There are two aspects to this task.

- (a) Some means should be found to levy contributions to the cost of development in Grangemouth/Falkirk on all rateable property in the Area. Whether a development corporation or similar body is set up in addition to the existing local authorities or a new type of local authority is made responsible for the Area, all parts of the Area should contribute to the cost of development, presumably in proportion to their rateable value. This will have the financial advantage and political disadvantage of opening the large industrial rateable value of Grangemouth as a source of revenue in developing the rest of the Area.
- (b) The additional development will, of course, create continual additions to the rateable value. In addition, the growth of Grangemouth/Falkirk into a major urban centre will raise property values; this rise should be reflected in revision of the annual value of property at reassessments, particularly in commercial and shopping centres. Failure to unify the rating system could distort development in Grangemouth/Falkirk by diverting industry and population from the areas of major expansion. It could also place a serious brake on expansion by curtailing the finance available.

10.22. Reform of the financial structure of local government carries administrative implications. These should be accepted and not circumvented. Fundamental reform of local government finance has made such slow progress because it has tried to avoid the problem of administrative reform. It could be argued that, if the nettle had been grasped, both types of reform would have been further advanced than they are now. Again the wider problems must be left to another time. The corollary of unifying the local taxation system is that the detailed planning must also be carried out on an area-wide basis. If the financial repercussions are to be felt throughout the Area, then there ought to be co-ordination of at least the major investment decisions.<sup>(3)</sup> The form need not conform to any existing pattern, but a possible solution would be a development corporation akin to those responsible for the growth of new towns.

10.23. Whatever form is eventually chosen

<sup>(1)</sup> It is now proposed to put certain roads under a general grant.

<sup>(2)</sup> For a review of local authority finance as it affects investment, see W. S. Hardacre and N. D. B. Sage, *Local Authority Capital Finance*, London, 1965.

<sup>(3)</sup> See Chapter 1 and paragraph 10.61 of this Chapter.

certain issues will be of great importance to the proper development of the Area. Local taxation has already been mentioned. In housing policy it is desirable that rents charged for local authority housing be as high and as uniform as possible. Rents will be an important source of revenue and, if the level is below the national average, the result will be that the authority responsible for the development of the Grangemouth/Falkirk Area will experience financial difficulties which may hinder the rate of expansion and/or lead to undesirable money-saving expedients such as reducing the quality of the houses or the standard of amenity. There is no necessary virtue—except perhaps tidiness—in a public body balancing its books; but in view of the financial responsibilities facing, or likely to face, local authorities or a development corporation, a large deficit on the housing account will mean either economies in other directions or else raising the level of taxation to cover the deficit directly or the interest charges on the capitalized deficit.<sup>(1)</sup> Unfortunately, if the level of rents in surrounding areas of Scotland is low, it will be difficult to raise them in Grangemouth/Falkirk. Another major source of revenue will accrue from the renting or leasing of commercial and industrial premises or sites. Policy in this respect will not be so hidebound.

### Conclusion

10.24. To sum up this Section on the several aspects of costs, there are major constraints upon expansion. The physical resources of the building and construction industry may be inadequate. Another bottleneck may occur if there is a shortage of professional and planning staff. Finance will be provided from central and local sources in the public sector. Centrally allocated funds may be limited by pressure of other calls on national taxation or by weakness in the fixed interest market. Local taxation, if still based on property values, should exploit all sources of payment in the Area rather than risk overtaxing one part; there will, however, be some limit, which cannot be precisely determined, to the amount which can be raised in this way. Other sources of revenue at a local level will arise from letting or leasing houses and other premises. Failure to realize reasonable (at least in the eyes of the central government) funds from these sources will lead to undesirable consequences, not least of which may be the need to raise local taxation to such high rates as will discourage private development. The use of funds and resources from the private sector will be an important way of supplementing development, especially in shopping and commercial development. It is essential that the Government and the local body or bodies responsible for the development of Grangemouth/Falkirk review both continuously and in detail these constraints upon the recommended pace of development. As reviewed in the above Section, none of the problems is insurmountable, but if circumstances of national economic policy, for example, restrain the availability of public funds, steps should be taken to co-ordinate other policies. It would, for example, be foolish to gear the

construction industry to a rate of building in excess of that made possible by the availability of finance.

## IV

### The 'Return' to Public Investment

10.25. The return to an investment project in the private sector of the economy is a comparatively simple concept. It may, however, refer to two separate magnitudes. It may be understood as the "profit", that is, the margin by which revenue exceeds costs. Alternatively, it could refer to the total revenue which accrues to the investor. The former measure is the better guide to the profitability of the investment project, since it compares returns (in the second sense) to costs. However, though it is so difficult to estimate total returns, far less express their relationship to costs, the idea of total returns has important wider implications from the contribution of investment to the community. (Another term used to mean nearly the same is "total benefits"). The first and obvious way to approach the question of the benefits from development is that the investment creates assets which will for many years into the future produce "housing services", "road services", etc. The local authority responsible may be regarded as a multi-product firm. The return on each branch of its activities will depend on the demand (i.e., how much money people are prepared to pay) for these services. The principal problem in estimating the return to public investment is that there are no prices to provide guidance. In the private sector the business man estimates the likely price, multiplies it by the total number of units he estimates he will sell and reaches an estimate of total revenue. This he will compare with his likely costs to determine profitability. The problems of assessing demand for these services will be touched on later in Section VI, but the most important point is that a great deal of the benefits are unquantifiable. One may try to assess a household's demand for housing, even between a 5-roomed or a 6-roomed house. To estimate in quantitative terms the benefits received from housing of high architectural value would be foolhardy. It may be expected that the benefits from this source will be high in Grangemouth/Falkirk, where by 1985 a high proportion of the social capital in houses, schools, roads and other facilities will be new. The additional population of the Area will, to take one example, not only have schools but modern schools which presumably will lead to an improvement in the quality of education. If one thinks, therefore, of providing "housing services" or "educational services" as a homogeneous product like a packet of detergent, there will be a risk of underestimating the total benefits from the Grangemouth/Falkirk investment.

10.26. There are, therefore, unquantifiable benefits assessment of which in many cases is

(1) For a discussion of the effects of low rents on East Kilbride, see H. R. Parker, *Leshans Regional Survey and Plan*, *op. cit.*, chap. 18.

not the primary concern of the economist. These benefits may, further, not accrue to the immediate consumer, e.g., the occupant of the house. They may take the form of what the economist calls "external" or "spillover" benefits. Architectural excellence will produce benefits for the passer-by. For this reason it is impossible to take a narrow view of these services and necessary to consider the wider social benefits. This is the major reason why the local authority cannot be too closely compared with a typical business enterprise.<sup>(1)</sup> Another reason for taking a broader view of these services arises from their interdependency. When a person "buys" or uses housing services in the Grangemouth/Falkirk Area he also buys sewerage, drainage, water, road services and, most probably, educational services. In addition, other services outwith the control of the local authority, principally electricity and gas, must be provided. His enjoyment of one service is very dependent upon the adequacy of the others. His appreciation of his house would be markedly reduced if he had to reach it over a ploughed field or if there was no mains sewerage. This makes nonsense of trying to assess the return to providing sewers, since it is difficult to isolate it from the return to housing.

10.27. It is, therefore, extremely difficult to assess the total benefits of the development of Grangemouth/Falkirk. At this point one must recast the questions. What are the benefits of accommodating the increased population in Grangemouth/Falkirk compared with alternative locations and patterns of distribution?

(a) The first possible alternative is that the additional population could be housed outwith Scotland. This, however, is a question which cannot be discussed here, and the argument is discussed in the Lothians Report<sup>(2)</sup> and in Chapter 1 of this Report.

(b) Secondly, the overspill element at least could be housed within Glasgow. This would clearly require such high densities as to run into very high direct costs of housing; high density development may also reduce the unquantifiable social benefits in reducing the quality of life; there are likely to be costs of congestion in Glasgow; the real value of land used will be very high. The same arguments will apply with less force to housing overspill within the Clydeside conurbation. In fact, there is no likelihood of housing this population in Glasgow, but only by comparing the Grangemouth/Falkirk project with this alternative can the former be seen as a lower-cost, more efficient scheme.

(c) Having ruled out the "radical" alternatives, there remains the possibility that the additional population could be housed elsewhere in Scotland. This judgment has presumably been taken in some measure by the Scottish Development Department, which has designated a number of "growth areas" or parts of Scotland, at present Central Scotland, capable of

absorbing a great part of the increased population. It seems clear that the development of these areas into major urban groupings makes economic sense in minimizing the cost of these services and encouraging economic development. While it is difficult to substantiate this opinion, it would appear that Grangemouth/Falkirk will be a successful growth area. This entails several types of benefit, which are outlined in the following paragraph.

10.28. The urban type of development proposed will tend to lower investment costs. But, more important, is the success of growth areas in creating employment growth. The theoretical and practical aspects of the "growth area" approach to economic development cannot be touched on here, but clearly the creation of employment is the other aspect of successful development. Firstly, the rapid build-up of the labour market, the improvement of economic overhead capital or infrastructure, the general air of "growth" will encourage the location of new factories and the expansion of existing establishments. The success of a Grangemouth/Falkirk "growth area" will accelerate expansion in the Area, although this will be partly at the expense of other areas of Scotland. Distributing the additional population in small pockets over Scotland would obviously not contain this advantage of using a rapid build-up of population and acceleration in development in Grangemouth/Falkirk to create a momentum of growth greater than would have been possible by natural increase of population alone. Public policy is important in a more general way in determining the tempo of growth by creating an almost indefinable confidence in the local community and among potentially immigrant firms. By creating growth and the prospect of future growth, there develops a local identity and greater sense of purpose by local bodies which creates a greater endemic dynamism and impresses outsiders.

10.29. Secondly, the development of a major urban area will, more directly, create public employment. This point has been more fully discussed in the Lothians Report.<sup>(3)</sup> Table 10.1 shows the employment created in most of the public service categories per thousand of total population and the likely employment in these categories if the employment/population ratio holds.

It should not be expected that the employment/population ratio will be as high in Grangemouth/Falkirk as in similarly sized communities such as Aberdeen and, to a lesser extent, Dundee, since it will not be a regional centre for a hinterland dependent on it for all administrative facilities. It will, however, be desirable to create a breadth of employment opportunities in the so-called service sector. The settlement of public sector jobs in the categories outlined in

<sup>(1)</sup> See K. William Kapp, *Social Costs of Business Enterprise*, London, 1968.

<sup>(2)</sup> *Op. cit.*, Volume I, Part II.

<sup>(3)</sup> *Op. cit.*, R. G. L. McCrone, "Public Investment", Volume I, chap. 14, paras. 14.56 to 14.65.

TABLE 10.1  
*Employment in "public services"*

Category of employment	Number employed per 1,000 population, 1961 <sup>(1)</sup>	Estimated employment in Grangemouth/Falkirk in 1986 <sup>(2)</sup>
Railways . . . . .	10.4 persons	2,340
Bus and tram . . . . .	6.5 "	1,480
Postal and telecommunications . . . . .	6.5 "	1,480
Gas . . . . .	2.0 "	450
Electricity . . . . .	3.3 "	743
Water . . . . .	0.5 "	113
Education . . . . .	15.4 "	3,465
Medical services . . . . .	17.4 "	3,915
National government . . . . .	11.5 "	2,588
Local government . . . . .	11.9 "	2,676
<b>TOTAL . . . . .</b>	<b>85.3 "</b>	<b>18,198</b>

Source: Census 1961, Scotland, Vol. VI, Part 2, Table 1.

<sup>(1)</sup> Scottish average.

<sup>(2)</sup> Assuming population of 225,000.

Table 10.1 will be an important way of achieving this end. Without repeating the introductory argument, it may be appropriate to repeat the recommendations of Dr. McCrone that, in addition to the employment build-up in local and district offices, consideration be given to siting a major public sector office development. It cannot be said that the advantages of Grangemouth/Falkirk in this respect would be as great as Livingston with its proximity to Edinburgh, but any area where the labour force is growing as rapidly as is recommended in Grangemouth/Falkirk would present advantages in the siting of a major office development.

10.90. Other regional benefits will accrue from investment in certain facilities. The roads programme will have important regional benefits. To take only one example, it will improve access to Grangemouth Docks from many parts of Central Scotland. There will, in addition, be investment in the docks themselves to improve the facilities. Regional parks and recreational facilities will create benefits extending beyond our immediate Area for which recommendations are made.

10.91. Within the Area a major part of the benefits from investment in improved facilities resulting from our proposals for development will accrue to the existing population. Many of the existing facilities are available only at a relatively low standard of provision. Schools are often old, having a very large proportion of substandard accommodation, other communal facilities are either non-existent or severely limited by premises or other restrictions.<sup>(1)</sup> Shopping and town centre facilities are not of a very high standard except perhaps in Falkirk, where traffic congestion significantly reduces the efficiency of the central area. The proposed development may well accelerate the improvement in environment and social overhead capital and, indeed, raise them to a level above the national average. This is the factor which will make unreliable estimates of cost per immigrant in expanded towns and for the development of areas with a significant existing

population. The rehabilitation and revitalization of old industrial areas was, of course, a major factor in the designation of this Area as the location of substantial development. The existing population itself will not benefit equally in being able to use the improved facilities in education, central areas, roads. Areas like Bo'ness will be on the fringe of development in the Grangemouth/Falkirk Area, whereas Larbert will experience a remarkable transformation in environment. There will also be drawbacks in living in an Area which is experiencing rapid change and development, since it is too much to expect that the planning will be perfect. There will typically be periods when existing facilities are overloaded before new ones are created.

10.92. To summarize, therefore, a most important type of return to investment in Grangemouth/Falkirk is specific to the particular type of public investment, from housing, education, roads. Part of this return is quantifiable, e.g., to education and roads, but much of it is unquantifiable, especially the satisfaction of living in well-designed houses and environment. The bulk of this Chapter has been concerned with the difficulty of achieving a rate of public investment which will keep pace with the recommended growth of population. The following Section reviews the principal determinants of capital cost. This Section has attempted to outline the framework of analysis to justify this effort and expense. It cannot, of course, conclude that investment in Grangemouth/Falkirk will show a higher return than additional expenditure on defense or on space research, or using the resources to increase the motorway programme. Far less can it hope to compare the relative merits of investing in Grangemouth/Falkirk or allowing consumers to spend a similar sum of money as they think fit. The analysis, so far as it has gone, does suggest that, if a substantial body of resources is to be devoted to accommodating the additional population of Central Scotland and redistributing a part of the existing population, then the plan outlined in this Report will show a relatively high rate of return.

<sup>(1)</sup> See Chapter 8 of this Report.

## The Capital Cost of Development

10.33. There are some general points which should be raised about the capital costs of services.<sup>(1)</sup> This Section is not an estimate of cost, since the details of the development proposals are not available. It will be useful, however, to note the factors which will influence the cost of development in the Grangemouth/Falkirk Area. It is particularly important for this analysis to note the factors which will cause the major differences in cost between alternative locations and alternative patterns of development. The task then will be to undertake a quantification of these costs. A promising approach to this problem is outlined in Volume II.<sup>(2)</sup> Threshold analysis attempts to identify the margin of choice by investigating the variation in certain investments, such as sewers, water, roads, which are in the nature of overheads, and other variations caused by special local features (gradient, cost of land).

### Housing

10.34. The principal determinant of housing cost is density. Higher density, while saving on site development and servicing costs, generally requires more expensive methods of construction.<sup>(3)</sup> In a large part of the Area geological considerations and mining may restrict the choice of design and layout. On the one hand, the poor load-bearing properties of the ground in parts of the Area will restrict widespread multi-storey development; on the other hand, risk of subsidence caused by old mine workings, especially around Larbert, may require higher density development on the parts suitable for house-building. Foundation costs may be generally higher in the eastern parts of the Area.<sup>(4)</sup>

10.35. The size and standard of dwelling is of importance to the total cost. Family size and structure will be more important in determining the cost of housing built by the public authority where houses are allocated by fairly clear formulae. The standard of the dwelling, floor-space and fittings will be restricted by some cost limit. In Scotland the almost inevitable deficit on the housing account created by the low level of rents tends to add greater weight to the need to pare costs to a minimum. Consideration ought to be given to increasing the choice in public authority housing by providing higher quality housing which would command a higher rent and may, under certain circumstances, be purchased by the tenant. The other method of increasing flexibility into this cost-versus-standards choice is by the provision of privately built housing. Given a finite allocation of funds for house-building, standards can be raised only by attracting in additional funds, e.g., from increased rents or from the private sector or, failing this, by cutting back the number of houses built and thus the rate of development.

10.36. The third group of factors determining the cost of housing lie in the efficiency of the construction industry. There is widespread

agreement that the road to increased efficiency leads towards increased application of industrialized methods of building.<sup>(5)</sup> However, it is necessary to take a comprehensive view of the construction and building industry to include also the allied professions and consider the consequences upon them of the new methods of construction.<sup>(6)</sup>

10.37. The choices in the three categories outlined above can be efficient only when housing is considered on an area-wide basis. For example, the density required in one part of the Area, say Larbert, will depend upon the capacity of other districts—Denny, Falkirk, Bonnybridge. Similarly, policy on rents and allocations ought to be uniform throughout the Area. I would recommend, firstly, that some unified authority have responsibility for planning, designing and building houses and the associated environmental services for the Area as a whole. Secondly, though less important than the first, housing management should be unified or at least co-ordinated throughout the Area.

### Education

10.38. The other major capital cost will be education. There are unfortunately rather more variables in the determination of these costs.<sup>(7)</sup> The decisions on educational standards and provision are taken independently of, and on wider grounds than, the process which will decide housing-roads-sewers-drainage. Since the decisions are less of a "local" nature, it may be useful to examine the current arrangements which control investment in education. These arrangements do not seem unsuitable in the foreseeable future provided that they recognize the special local conditions in a growth area like Grangemouth/Falkirk. It is important that constraints upon educational expenditure do not restrict development.

<sup>(1)</sup> For a review of estimates in the simpler case of a new town built on a new-terrain site, see J. T. Hughes and J. M. W. Stewart, "The Capital Cost of a New Town", Appendix to Chapter 14, *Lutetia Regional Survey and Plan*, op. cit.

<sup>(2)</sup> Volume II, Phase 2, Data and Analytical Studies (2, Threshold Cost Analysis).

<sup>(3)</sup> Research is being carried out at the Department of Social and Economic Research, University of Glasgow, into the costs of varying densities.

<sup>(4)</sup> See K. J. Allen, Chapter 11.

<sup>(5)</sup> For a discussion of the problems of the building industry, see:

M. Bowley, *The British Building Industry*, Cambridge, 1966.

R.I.B.A., *The Industrialization of Building*, April, 1965.

O. Roskill, "Consent of Local Authorities", a survey for *The Builder*, September, 1964.

L. Needleman, *The Economics of Housing*, London, 1965, Chapter 5.

Ministry of Public Buildings and Works, *Organization and Practices for Building and Civil Engineering. Report of the Working Party on Building and Civil Engineering Procedure in Scotland*, 1964.

<sup>(6)</sup> There is further discussion of educational policy and requirements in Chapter 8.

<sup>(7)</sup> For further argument on this point, see J. T. Hughes, "Problems of Industrialized Building", *Three Books Review*, No. 66, June, 1965.

## Education in Scotland

10.39. Education in Scotland is administered by the respective county councils and the Scottish Education Department (S.E.D.). To build new schools or incur any form of capital expenditure the local authorities must obtain the approval of S.E.D. This approval does not take the form of a pass-or-reject review of plans, since the process is a continuing one involving close co-operation between local authorities and S.E.D. in deciding the desirable curricula and design for each school. In addition, the local authorities are required to keep S.E.D. informed of future plans. The Department has powers to compel laggard authorities to take certain action, but usually control takes the form of a reduction in the over-ambitious programmes proposed by the local authorities.

10.40. The control of expenditure on a project such as a new school, therefore, is a complex one through the general guidelines of S.E.D. building regulations, suggestions on desirable features of planning and design, and the more detailed comments on the design. There is a cost ceiling which S.E.D. hope to convert from one determined by the area of school buildings to one of cost per pupil. The effectiveness of this cost ceiling can, however, be understood only in the light of the more detailed negotiations on the curricula and organization of the proposed school. S.E.D. are aware of the vices of such ceilings, for example, that piling capital costs may lead to higher maintenance expenditure. Their conclusions in this case are that, except in certain obvious respects (e.g., asphalt instead of felt roofing), the return to additional expenditure in the form of reduced maintenance costs is very small. Thus, although many decisions in education are subject to review by the S.E.D., this should not, under the present regime, present serious barriers to the proper co-ordination of education with other types of planning provided that the special claims of a rapidly developing growth point are given due weight. Indeed, the function of the Department as a source of information about new techniques will substantially aid the efficient planning of educational investment.

### Cost of schools

10.41. The Scottish average capital costs per pupil are in primary schools £250 and in secondary schools £650. But several qualifications make it unsuitable to apply these figures without further discussion. The cost of both types of school is generally higher in remote, inaccessible areas where building costs are raised by higher transport costs, etc. The Grangemouth/Falkirk Area would not be in this category. There are also special "pockets" where the demand for building labour is exceptionally high. For example, in an area west of Dunbarton building has been made difficult by the heavy demands on the industry of the construction of the Glendouglas N.A.T.O. base. Parts of Midlothian are affected in a similar way by the beginning of large-scale construction activity in Livingston. The proposed programme of house-

building and other construction in the Grangemouth/Falkirk Area may well create one of these points where the building industry is overloaded. It will have the advantage of its nodal position in the labour market structure of Central Scotland, but it is doubtful how far it could draw labour from surrounding areas, since Cambernald lies to the west and Greater Livingston will exert a powerful influence on the eastern periphery. It is recommended elsewhere that there should be assessment of the capacity of the construction industry and steps taken to adjust it to the prospective demand.<sup>(1)</sup>

10.42. A further main group of factors may cause variations in costs between areas in Scotland; these factors are embodied in the several policies towards modes of education and organization of schools adopted by the local authorities. There are two authorities responsible for education in the Grangemouth/Falkirk Area—Stirlingshire County Council and West Lothian County Council. The West Lothian part of the Area is, however, an "enclave" relatively isolated from the rest of the county and may present certain difficulties. It may be necessary for certain categories of pupils to travel to other areas if their numbers cannot justify the provision of appropriate facilities in the immediate area. The children may, as at present, travel to other parts of West Lothian; there is no reason why there should not be an interchange of pupils between Stirlingshire and West Lothian. It is not the function of this Chapter to make detailed recommendations, but it is important that the educational provisions in Bo'ness (and Linlithgow) should be considered together with the eastern areas of Stirlingshire. This need not be taken to mean that the existing form of administration is inefficient, only that county boundaries should not stand in the way of the most efficient provision of educational facilities.

### Primary schools

10.43. The nominal roll for a 2-stream primary school is 650 pupils (7 classes of 45 pupils x 2). The actual roll will differ, since it is unlikely that all classes will be of exactly the same size. The authorities will tend to keep some spare capacity to take account of contingencies. This will influence the cost per pupil. Since one cannot expect children under twelve years of age to travel long distances to school, in the more sparsely populated areas it may be necessary to provide smaller schools, with a consequent rise in cost per pupil. Since the new development in Grangemouth/Falkirk will be of a mainly urban character, I propose to ignore the problem of small, isolated pockets in West Lothian or the eastern fringe of Stirlingshire, as in this mainly urban community, there should be little difficulty in sizing 2-stream primary schools without creating unreasonable travelling. In the new urban areas it may be possible to create a "campus" of two primary schools (non-

<sup>(1)</sup> See *The Scottish Economy, 1961 to 1970*, H.M.S.O., Edinburgh, 1966. Cmd. 3254, chap. XV.



denominational and R.C.), thus saving in the provision of certain facilities. These economies could be carried further by the addition of secondary schools on some of these campuses.

### *Secondary schools*

10.44. The variation between local authority areas will be greater in the case of secondary schools. The reason is that the type of comprehensive system chosen by each county will call for different types and sizes of schools. If, for example, there is a need to cater for 3,000 secondary pupils, one could adopt several solutions, variants on two main types.

(i) Fully comprehensive system. Under this system a child stays at the same school from the age of 12 to 18 (or earlier leaving age). It is unlikely that there would be a single school of 3,000 pupils, but there could be two schools of 1,500 or three schools of 1,000, each with its specialist equipment. From the point of view of capital cost, this cheaper solution would be two schools of 1,500, since there are economies of scale in the larger school.

(ii) 2-tier system. In order to secure optimum use of specialist buildings and equipment and of teachers, a 2-tier system may be adopted which is fully comprehensive from ages 12 to 14 or 16. At age 14 those pupils capable of doing a number of "A" level passes will transfer to a senior school; the others will mainly complete the Scottish Certificate of Education (S.C.E.) at 16, but may progress further. If this system were adopted the distribution of pupils could be 2,000 in the lower school and 1,000 in the senior school. In both tiers the specialist equipment appropriate to both academic and non-academic streams will be used as fully as possible.

In a fully comprehensive system the capital cost per pupil will fall continually as the size of school increases, but the steepest part of the curve lies between 800 and 1,500 pupils, after which reductions tend to become smaller. The cost per pupil in a school for 1,500 could be 30 per cent to 40 per cent below that in a school for 800. The maximum desirable size will be determined not by capital cost but by possibly undesirable effects of very large school on the morale of staff and pupils. In a 2-tier system the optimum size is in the order of 1,500-2,000 for a junior school and 1,000 for a senior school. The development of the Area into an urban community should make the replacement of existing schools and the reorganization of secondary education into a comprehensive mould a more economic proposition.

### *Phasing of educational investment*

10.45. While an area is being developed there will be a time during which a school designed to accommodate the planned population will be only partly filled. Two courses of action occur in these cases. Either the children are transported to nearby schools, perhaps causing overcrowding

there, or the schools are built in good time and lie empty. Generally, the second alternative is regarded as the more desirable course, and education authorities are castigated when children are required to travel considerable distances. Nevertheless, the existence of under-utilized schools does represent a cost to the community; at the most elementary level of calculation the waste of a primary school costing £200,000 and remaining half-full for three years would be, at seven per cent per year, no less than £21,000.<sup>(1)</sup> As may be seen in this Chapter,<sup>(2)</sup> secondary schools cost considerably more. There is no easy solution to this dilemma. Planning of residential development should, however, bear in mind the number of families required to fill a primary school and develop areas of this size as rapidly as possible. The problem of the secondary schools is more difficult, since they draw pupils from a much wider area so that it is inevitable that several years will elapse before they are filled. However, older children may also be expected to travel longer distances during the period of adjustment. The problem of providing both Roman Catholic and non-denominational schools makes the problem of phasing more difficult, but it could be possible to make one school serve both groups during the transitional period of build-up until two schools are warranted by the population. In areas of rapid population expansion there is a longer term problem of "bulges" in the school population caused by an imbalance in the population structure. This makes it desirable to introduce a degree of flexibility into school provision by the use of temporary classrooms and designing schools so that such classrooms may be integrated into the organization of the school without disruption.

### *Other costs*

10.46. (a) In the provision of shopping and other commercial premises, the cost will greatly depend upon the pace of renewal and re-development, especially in the centre of Falkirk but also in other centres. Much of this expenditure cannot be attributed to the new population, since it would have to be carried out in some measure even if the population of the Area remained static.

(b) Roads will be the other principal component of development expenditure. There will be 25 miles of motorway costing approximately £4 million. 35 miles of primary or regional distributor roads will be new or substantially improved at a cost of a further £4 million. District distributors will cost £6 million for 70 miles.<sup>(3)</sup> These costs do not include the construction of minor service roads.

(c) The cost of land could be a very important item during the later stages of development, when the increase of economic activity will tend to raise land values. This may be particularly severe near the central area of Falkirk. Control

<sup>(1)</sup> See the later Section of this Chapter on frozen capital, para. 10.53 to 10.56.

<sup>(2)</sup> Paragraph 10.41.

<sup>(3)</sup> For further details of road network, see Volume II, Phase 3.

of land prices is a very large and thorny question but, with the help of the changes in national policy, the public authorities and private developers ought not to be penalized by paying unduly high prices for land, the value of which has risen by virtue of these decisions to develop. It is worth noting, however, that the market price of land may be a guide to its value. Although in the interests of equity it is desirable that the price be controlled, planning decisions to determine its future use should employ a shadow price which reflects its market value.

(d) At a time when many parts of the United Kingdom are suffering an acute shortage of water and the prospect of exploiting high-cost sources, it is difficult to foresee Central Scotland facing these difficulties in the foreseeable future. Grangemouth/Falkirk have, from existing sources, a surplus of potable water of 4 million gallons per day and, by augmentation of existing sources, a future potential of an additional 18 million gallons per day. The major augmentation scheme would add 12 million gallons per day to the resources of the Grangemouth area without seriously raising the cost of water. The Loch Lomond Scheme will not involve the major capital cost which the creation of a new artificial reservoir would entail. The adequacy of supplies of industrial water will partly depend upon the nature of the industry, the purity of water required and the nature of the use, but no problem should emerge in this respect.

## VI

### Efficiency in Public Expenditure

10.47. Preparation for this Chapter included an attempt to estimate in money terms the implications of the expansion in population, which has now largely been abandoned in face of the problem of defining standards. Any attempt to estimate total cost could be only on the most stringent and limiting assumptions. A realistic assessment would require a full consideration of the relationship between standards and costs. Bearing in mind the number of services involved and their complexities, the economist would be little more than an informed layman. It was decided, therefore, that it would be preferable to discuss the main determinants of cost and to indicate how these would vary; this has been done in the previous Section. It will be necessary, however, for the proper planning and implementation of the recommendations of this Report to carry out a detailed and continuing assessment of the costs involved for a five-year period into the future and more tentative "forward looks" up to ten years ahead. A multi-disciplinary group should examine the probable costs of the development proposed on a continuing basis as part of the work of the agency responsible for the development of the Area. This would serve two purposes. It will be of the utmost importance in assessing the implications of this Report for building resources and finance. More broadly, it would demonstrate in crucially relevant circumstances the impact of the recommendations on the provision of many

social services and facilities which have come thick and fast since the late 1930s. The rational planning of social capital in the Grangemouth/Falkirk Area will require the establishment of clear priorities between types and between standards of provision. To make this point more directly, it will prove impossible to provide all types of social facilities at the highest desirable standard without disturbing the rate of expansion. Someone or some body must decide upon priorities. One function of the work of the development agency would be to give meaning to the choices. The logical corollary of this process is, therefore, to set up a further process for making the choices. The further purpose of this Section is to discuss the methods by which this function is usually performed and to outline the ways in which a greater degree of economic rationality may be brought to bear.

10.48. At present, appraisal of social investment in services like housing, roads, education, tends to separate decisions about quality and these about cost. The desirable quality tends to be discussed at a national level and the feasibility decided in the light of local resources. Firstly, decisions are taken upon the standard of houses or roads which are decided as "desirable" on grounds which derive mainly not from the consumer but from opinions within the profession or professions more closely concerned with the facilities. Roland N. McKean sums up this approach. "The 'requirements approach' is used throughout much of the government. Officials inspect a problem . . . and set up a 'required' task, piece of equipment or performance characteristic. Cost is given little or no explicit consideration at this point: the requirement is somehow drawn up in the light of the need or payoff alone. . . . Then feasibility is checked. . . . If the programme passes the feasibility tests, it is adopted; if it does not, some adjustments must be made. But the question—what are the payoffs and the costs of alternative programmes?—may not be explicitly asked during the process of setting the requirement or deciding on the budget."<sup>1</sup> The case for public provision of these goods rests partly on grounds of consumer irrationality. The other main justification of State participation is that they are such large, indivisible items in the expenditure of the average family that some cannot afford it and that those who can afford it find it a considerable burden. There is a need for greater economic assessment in these "desirable standards". The reaction to the doubt whether the nation can afford them is usually: "We (or Society) have just got to afford them". This slightly, but not seriously, misrepresents reports on housing and recreation standards, and on roads and education. Considered alone, they may seem reasonable enough, but when the attempt is made to implement them all at the same time, they may create an intolerable burden within the available budget.

10.49. The second approach to the problem of efficiency tends to be that of the financial

<sup>1</sup> *Efficiency in Government Through Systems Analysis*, New York, 1968, p.11.

administrator. It begins by determining a fixed budget or allowance and attempts to secure the highest possible standard within these constraints. The pitfalls of this approach are obvious in encouraging a short-term view in decisions and in reaching administrative compromises which are not closely related to the needs of the situation. It has the advantage of posing the problem of standards-versus-cost as one of the simpler optimization problems, but in the version which least lends itself to quantification. As a result, very often the allocation of the budget is determined by administrative convenience. The crucial shortcoming of this method is that it ignores the way in which benefits change. It assumes implicitly that benefits accrue evenly as cost increases. If they do not accrue in this way, then in some circumstances benefits may be greatly increased by a relatively small additional expenditure. Or else lowering the cost ceiling may not lead to a comparable loss of benefits.

### *Economic assessment of investment decisions*

10.50. In practice, control of investment expenditure must be by both approaches. It is not the function of this Chapter to suggest the exact administrative structure by which this control may be achieved. It will, however, call for review of planning decisions by a body which has responsibility for development of the whole Grangemouth/Falkirk Area and for all the major services. Reform of the local government structure may bring this about, but an interim solution, which may also have longer-term possibilities, may be a body similar to a development corporation. One cannot imagine a solution which is administratively feasible without a budgetary constraint, i.e., a fixed maximum quantity of funds is made available for the development of Grangemouth/Falkirk. This "ceiling", however, should be set after full consideration of the nature of the task which faces the planners of this region. The budgeting process must reflect the economic realities which underlie it. This decision will determine the share of Grangemouth/Falkirk in the total capital budget of the economy. The next set of decisions is concerned with the need at a local level to choose the most efficient pattern, scale and pace of development.

10.51. As outlined at the beginning of this Section, the economist is at a disadvantage since he cannot quantify his output. He will, however, identify this problem as one of resource allocation. The economist, when dealing with the problem of how best to allocate resources, has two main concepts which aid him. Perhaps "concept" is rather too grandiose a term; there are two attitudes of mind which distinguish the economist's approach. The first is the concept of the "margin", which will be elaborated later. The second is the notion of opportunity cost. The true cost of taking a course of action is the value of the alternative foregone. The cost of acquiring land to build a road is not the purchase price but of the most valuable use to which the

land could have been put if it had not been required for roadbuilding. Both concepts are inseparably linked to the comparison of alternative ends and methods of attaining them. The most efficient allocation of investment in the development in the Grangemouth/Falkirk Area depends upon the continuing use of this kind of appraisal. It is proposed elsewhere to try to go some of the way towards identifying the margin in planning decisions by the use of threshold analysis. A proper view of opportunity cost will emerge from this.<sup>(1)</sup> The other important element in investment decision is the time element. In the remaining Sections, three important elements are dealt with—the problem of time discounting, frozen capital and "phasing".

### *The consequences of time discounting for public investment decisions*

10.52. An important issue in public investment decisions is how far one should make provision for prospective future growth in current investment plans. It is usually considered "good" planning to make provision for future growth in present plans, but in many cases it is not justifiable on economic grounds to incur costs now even if they result in considerable apparent savings in the future. These apparent future savings will not be true savings unless they are discounted at an appropriate rate, since a given flow of income, consumption or saving is less valuable in the future than in the present. Individuals and the community as a whole have a time preference, that is, they prefer jam today to jam tomorrow. An example might make this clearer. If £1,000 were spent now in buying land to reserve space for road improvements in 30 years' time which would save £2,000 at that time in the costs of redevelopment to provide room for the road widening, would it be worth while? The short answer is that it would not. £2,000 discounted at five per cent through 30 years would have a present value of only £462. Time discounting should not be confused with the rate of interest which has to be paid for the use of funds. The rate of interest is partly determined by the community's time preference, but its level at any time is the result of many other technical influences. Nor should the rate of discounting be confused with a rate of return on the investment. This Section is not intended to discourage planning for the future in investment decisions. On the other hand, it is important in these decisions to appreciate the effects of time preference on the economic values of prospective savings.<sup>(2)</sup> There may be considerable argument over the rate of discounting which would reflect the community's time preference, but it would be very difficult to justify one less than five per cent.

<sup>(1)</sup> See Volume II, Phase 2, Data and Analytical Studies (2, Threshold Cost Analysis).

<sup>(2)</sup> Once a rate of discounting has been decided the present value may be calculated by using the formula  $P = S/(1+r)^n$  where  $P$  = present value,  $r$  = rate of discount,  $n$  = number of years,  $S$  = future sum.

### Frozen capital

10.53. All investment projects have two distinct phases, (a) the construction period during which the project incurs costs and no returns, and (b) the productive phase during which, at the expense of running and maintenance costs, the project produces goods and services. It will be fairly clear that during the construction period there will be a "waste" of resources, since bricks will have been laid and labour used to lay them without housing services becoming immediately available until the house is completed. It is, of course, impossible to build a house in an infinitely small period of time. Public investment projects, however, usually have a much larger construction period than most other types of investment, so that it becomes more important to reduce this period to a minimum by better planning and improved methods of construction. At some point it becomes too expensive to speed up the work flow because of site congestion, too high a degree of planning or excessive use of capital equipment; but *some* additional expense may be contemplated in order to reduce the cost of resources frozen and unproductive during the construction period.

10.54. In the second stage, (b), the time structure of returns to an investment project may vary. Since most public investment, schools, community facilities must be completed if it is to be efficient in large "lumps", it is likely that the facilities may be relatively underused during the early stages of its productive life. Again, some degree of under-utilization is necessary, since one cannot wait until all the children are assembled before providing a school; but by concentrating development on as few areas as possible, the under-utilization may be reduced. This may be shown graphically. If over the whole Area 600 additional children require primary education per year, in two years, therefore, 1,200 places must be provided. If these families can be housed in two areas (A and B) of equal capacity, the choice

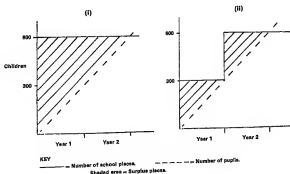
arises of whether (i) to build up A in year 1 and B in year 2, or (ii) to develop both areas over a two-year period. If (i) is chosen, a school may be completed in area A at the beginning of year 1 and in area B at the beginning of year 2. If (ii) is chosen, both schools should be completed at the beginning of year 1. The following diagram shows the greater efficiency of (i) in minimising excess capacity.

That is, by localizing the population build-up in each of the time periods it would be possible to reduce the excess capacity in available schools and also, possibly, smooth the flow of the school-building programme.

### Programming of development

10.55. Several criteria may be adopted to determine the optimal programming of development. One may, for example, argue that the rate of investment expenditure should remain constant, modified by a possible transitional period during which the available resources may be built up. This programme may well conflict with the desired rate of population build-up. A constant rate of investment would not lead to a steady population increase, since there may be periods when considerable time and expenditure may be required to open up new areas for housing development. An examination of the "thresholds" outlined in Volume II ought to provide a programme in which the discontinuities caused by this factor could be minimised by rapid exploitation of each threshold area in turn and the use of the smaller intra-threshold areas to provide flexibility. A constant rate of population build-up may be one hypothesis. Alternatively, a constant rate of immigration would require an accelerating rate of development and expenditure, since the constant inflow of households will be added to a rising household formation within the Area.

10.56. Another major determinant of the growth of the Area will be employment creation. The growth of employment opportunities, being mainly the result of private decisions, does not



lead itself to closely controlled planning. The location of employment will depend upon national economic trends, the success of the Government's regional policy and random factors. It will, however, not be entirely independent of other features of development in the Area. The provision of an adequate transport network and economic overhead capital will be more likely to attract footloose industry. More directly, the provision of factories and general co-operation by the local authorities will encourage industry. The population growth by enlarging the working population will also encourage new industry, particularly if the demand for labour remains high in Scotland and the U.K. The growth of population and incomes will directly create employment in the service sector. Despite these interrelations, it is likely that variability of employment growth may interrupt any predetermined programme of development.

10.57. From the point of view of public investment and the allocation of resources to the development of the Grangemouth/Falkirk Area, a steady rate of investment is desirable. By phasing the major projects at Falkirk, Larbert, Denny and Bonnybridge it ought to be possible to minimize the disruption caused by completing the investment in roads and services to "open up" these areas. In addition, the minor pockets of development may be used to provide flexibility in the rate of growth. This flexibility is most likely to be required to allow for the variability in employment growth. Fluctuations in the rate of immigration may also be responsible for disruptions in the growth rate. It would, however, be undesirable to accept wide short-term fluctuations in investment expenditure, since the disruption caused in the budgetary process and to the construction industry could make it difficult to raise the level of investment in subsequent years.

## VII

### Conclusion

10.58. This Section does not summarize the argument in detail. It is necessary firstly to isolate a thread which has been woven through the above argument. This Chapter has not attempted to lay down a "plan" for public investment to 1985. Such a task would have been beyond the resources and time available. In any case, such are the uncertainties in the future that any attempt would have contained serious errors. The same difficulties made it impossible to quantify the costs and returns of development in the Grangemouth/Falkirk Area. Instead, an attempt has been made to show that the planning decisions which have been and are to be taken for this Area have important economic consequences (Section II). Problems will arise from the commitment of such a substantial body of economic resources to the development of Grangemouth/Falkirk in providing the social and economic overhead capital of the Area to accommodate and service the new population and improve facilities for the existing com-

munities; economic appraisal is essential to their efficient use. This, in turn, calls for a broad view to be taken of costs and benefits (Sections III and IV). It may be thought that the significance of the public finance problems involved in acquiring finance for the investment expenditure required has been unduly minimized. In the short-term this factor may be crucially important, but eventually one surely must look forward to reforms in these arrangements. More important, it must be realized that expenditure on a local level is still a function of the available real resources and the share of these resources which the public sector can command. Viewed in these terms, the problem of efficiency in public investment expenditure is not an optimal path which can be laid down in advance. Rather, this Chapter (Section VI) argues for the continuing appraisal of this expenditure on economic criteria.

10.59. From the foregoing analysis certain general conclusions may be stated.

- (a) Many types of planning proposals have important repercussions on the cost of public investment; these primarily concern density, design, and location of different types of development. There will also be broader, more indirect consequences of decisions about the future development of the Area, the nature of industry (particularly the manufacturing/service balance), socio-economic structure, occupational distribution and age distribution. During the period of development close attention should be paid to these major cost-determining parameters to ascertain the extent to which variations will cause changes in the requirements for and cost of social facilities.
- (b) There is a tendency to regard government expenditures as "necessary evils". It is important to bear in mind that many of the expenditures under consideration in this Chapter are devoted to providing facilities and services which are fundamental not only to the economic efficiency of the Area, but also to the quality of life enjoyed by its population at large. To attempt to quantify these satisfactions is difficult.
- (c) Economic techniques of appraisal are necessary to the efficient planning of the public investment programme. It is important to avoid the straightjacket of a "requirements" or a "cost ceiling" approach and to consider more fully the definition of standards of provision in the light of the resources available. The essence of investment planning is the appraisal of the distribution of costs and returns through time. The concepts of time discounting, frozen capital and programming of interdependent facilities are aids in this respect.

10.60. Finally, other conclusions emerge which embody more direct recommendations for the development of the Grangemouth/Falkirk Area.

- (a) A development scheme on the scale of

Grangemouth/Falkirk will run into severe limitations in national resources required to create the economic and social overhead capital. These limitations will principally arise in the capacity of the building and construction industry; of great importance is the supply of skilled labour in the building trades. There ought to be a continuing investigation of the capacity of the industry and, if necessary, steps taken to increase it. Other scarcities exist in allied professions—planners, architects, surveyors, etc. Decisions in the Area should reflect the need to economize in the use of these scarce resources by the adoption of industrialized techniques, especially in the construction of houses and schools. The application of these techniques will call for careful planning of the programmes of construction and design in order to exploit the potential of these capital-intensive methods. A broad view of costs, including those caused by a slowing up in the pace of development and construction, will justify the possible additional expense of these new methods.

- (b) Financial limitations (i.e., shortage of funds as opposed to shortage of real resources) may be avoided in some measure by the use of private finance, especially in housing and central area facilities. A limitation upon this must be the need for proper control in the planning and operation of these facilities by local authorities. There should be examination of the feasible methods of combining public and private finance and control. The introduction of a greater degree of allocation by price may also attract more building resources into the Area.
- (c) The financial burden will place a severe strain on the present system of local taxation. In the long run, one must look forward to a reform in the tax base available for local expenditures. Meanwhile, the taxable capacity of the whole Area should be tapped. Assessments should be continually revised to reflect the increasing value of property created by this new urban community. Taxation is not the only source of revenue for local authorities. Rents for houses, factories, shops, and revenue from leases, will be an important source of finance.
- (d) The recommendations of this Report<sup>(1)</sup> will require a substantial commitment of funds by the central Government to help finance the capital expenditure and support the increasing current expenditure. Only the Government itself can decide the priority of this project for funds in the light of its other commitments, but it must be realized that the success of the proposals set out depend upon a willingness to make substantial expenditures.
- (e) It is recommended in (f) below that some administrative agency be given responsibility for examining the provision

of social investment. This body should also have responsibility for providing fairly detailed "forward looks" of cost, which should be the basis for a capital budget available for the development of the Area agreed to by the financial agencies concerned.

- (f) The Grangemouth/Falkirk project may be thought of as having a return in the sense of fulfilling its functions either more cheaply or, with a given cost, more successfully. The prospects for the Area compared to other locations are reviewed in Chapter 1. As a location for housing population, it does not appear to present unduly high capital costs; as a growth point, it appears to have a good chance of success. Other benefits will accrue to the existing population in the improvement of the environment and income levels. Still other benefits from roads, port improvement, and recreational facilities will be spread more widely in Central Scotland. In short, although the costs of developing Grangemouth/Falkirk will be high, many of them will have to be undertaken anywhere in Scotland. The issue is whether the location and pattern of development outlined in this Report will produce a better return in terms of an improved environment and economic growth.
- (g) Houses will be required for the additional population anticipated before 1985;<sup>(2)</sup> a further number will be needed to replace existing property which is unfit or which will be demolished in redevelopment proposals. The cost of housing will be the most important one in terms of capital. Careful consideration should be given to standards in the light of the capital budget available for the development of Grangemouth/Falkirk. The decisions will be required to balance the need for rapid development and the desirability of creating a high standard of environment. Assuming a type of house and the efficiency of the construction industry, the density and layout of housing areas will be the main determinant of cost. Higher densities are generally regarded as uneconomic, but consideration should be given to varying densities in view of possible foundation difficulties (see Chapter 11) and the possible steep rise in the marginal cost of a more extensive, low-density pattern.<sup>(3)</sup>
- (h) About 20,000 primary school places will be required and 12,000 secondary pupils accommodated. The optimal pattern of investment in schools will be largely determined by educational considerations, but the capital cost per pupil will tend to be reduced in larger schools. The move towards comprehensive secondary educa-

<sup>(1)</sup> See Chapter 1, pages.

<sup>(2)</sup> See Chapter 2.

<sup>(3)</sup> Volume II, Phase 2, Data and Analytical Studies (2, Threshold Cost Assessment).

tion will create pressures in the same direction. The urban character of the region should present no obstacles to large schools, collecting pupils from a relatively small catchment area. The Area ought to be considered as a whole for the provision of educational facilities where additional expense would otherwise be incurred in making separate provision for Bo'ness.

- (i) The cost of land may be an increasingly important item of cost. Control of land prices by the powers of local authorities and the proposed Land Commission should be exercised. It must be borne in

mind, however, that market prices are often a good guide to the opportunity cost of using land.

- (j) The proper planning of investment in social facilities will require that it is done by an agency which has surveillance over the whole Area.<sup>(1)</sup> The body could be similar to a development corporation, but must have responsibility for all major services (if necessary, in consultation with other authorities or ministries), and for the whole Area.

<sup>(1)</sup> See Chapter 1, paragraph 1.32.

## Two Land Use Problems—Foundation Costs and a Reclamation Scheme

K. J. ALLEN

11.1. The study of the Area brought to light two interesting land use problems. One involved the possible high building costs because of the poor weight bearing capacity of the soil in some parts of the Area; the other concerned a scheme which had been mooted for many years—the reclamation of part of the Forth foreshore. It was decided that it would be useful if a short paper was written on each of these topics. These papers are presented below.<sup>(1)</sup>

### I

#### The Extra Costs of Foundations in the Grangemouth/Falkirk Area

11.2. The geomorphological conditions existing in the Area have been discussed by Dr. B. Sissons in Volume II of this Survey. His findings are that parts of the Area—mainly that in and immediately surrounding Grangemouth—are of relatively new geological material. Below a few feet of reasonably well-consolidated surface material lie many feet of drift. Building in this Area gives rise to problems demanding extra foundations in order to safely support the structure.

11.3. The aim of this short paper is to attempt an assessment of the extra costs, through the need for extra foundations, involved in building on such poor ground. Shortage of time has not permitted a very detailed survey of the problem. The author believes, however, that though additional information may have provided a more comprehensive picture, it would not have altered the basic conclusions. Most of the data which has been used in the analysis below relates to Grangemouth only, where conditions are particularly bad. It is important to stress that there are many parts of the Area where the need to consider foundation problems does not arise—that is, where ground conditions are no worse than elsewhere in Great Britain.

11.4. In order to assess the impact on costs by building on bad ground, one cannot simply calculate the foundation costs of building in such conditions: one must relate such costs to "average" substructure costs. The choice and calculation of "average" substructure costs for buildings of particular weights and types is not easy. The author has been advised that the substructure costs in the Denny area are about average. Most of the calculations of additional

costs for Grangemouth have been made, therefore, taking the figures for Denny as representing "average".

11.5. Poor ground conditions requiring heavy foundations are by no means rare in Britain. Many of the country's largest conurbations have the same problem. Bristol, Glasgow, London, Liverpool and Belfast are cases in point. It is fairly normal for large, flat areas to have poor ground conditions. To some extent, the costs of extra foundations involved in building on such land are offset by the fact that no site levelling is required or, as an alternative to this, no underbuilding costs are incurred. In some of the calculations below an attempt has been made to take such considerations into account.

11.6. This paper is in three parts, the first examining the additional cost of house building in the Grangemouth area. Secondly, the importance of additional costs for industry are discussed. A final part contains the conclusions.

#### Housing

11.7. The Tables on page 204 show the typical additional costs involved in building single-, two- and three-storey houses in the Grangemouth area.

11.8. The important figure is that which shows the additional foundation costs as a percentage of total house costs. The basic data which has been used for the above calculation was for 1960 and 1961. Since that time the absolute figures have changed as a result of the rise in building costs, but the relation of substructure to total costs will not have changed.

11.9. The figures show quite clearly that the additional costs of building houses of this type

(1) The treatment of both of these problems demanded considerable inter-disciplinary co-operation. The author is grateful for the willing assistance he has received from a long list of architects, civil engineers and quantity surveyors. Among those who have given information and advice on one or other of these problems are: Mr. J. Thomson, University of Edinburgh; Burch Engineers of Grangemouth and Falkirk; Messrs James Girdle & Son, Chartered Surveyors, Grangemouth; Messrs. Balbir Shaw & Morison, Civil Engineers, Glasgow; Messrs. Rhyt & Rhyt, Civil Engineers, Edinburgh; Messrs. Wilson & Wilson, Architects, Falkirk; West's Piling & Construction Co. Ltd., Glasgow; Messrs. Allan & Hutchinson & Partners, Architects, Edinburgh. None of these people or firms see in any way responsible for errors of judgment or fact which may still remain.



*Single and two-storey houses:*

Grangemouth foundation type 2'6" x 6" strip foundations

Average foundation type 2'0" x 6" strip foundations

Extra costs per house because of such foundations

Additional cost per sq.ft. . . . . £5

Additional foundation costs as a percentage of total house cost . . . . . 14d

Additional foundation costs as a percentage of total house cost . . . . . 0.29 per cent

*Three-storey houses:*

Grangemouth foundation—4'0" x 9" strip foundations with light reinforcement

Average foundation—2'3" x 9" strip foundations

Extra costs per house because of such foundations

Additional cost per sq.ft. . . . . £30

Additional foundation costs as a percentage of total house cost . . . . . 6d

Additional foundation costs as a percentage of total house cost . . . . . 1.23 per cent

in the Grangemouth area are of hardly any importance. The figures take no account of underbuilding or site preparations, which would be higher in, say, Denny than Grangemouth. No details of these types of costs were available, though many of the architects who were consulted suggested that the underbuilding needed in Denny might bring the final cost of a single- or two-storey house to a slightly higher figure than in Grangemouth.

11.10. Foundation costs for four- and five-storey houses are well above those for low rise buildings. At this level, strip foundations are no longer adequate and raft or pile foundations need to be used. There was a far greater disparity in the estimates supplied for the extra foundation costs for four- and five-storey houses, but they lay between five per cent and seven per cent of total house costs. Such figures would be reduced slightly when account is taken of the saving on underbuilding when building on the flat land of Grangemouth.<sup>(1)</sup>

11.11. No flats above five storeys have been built in the Grangemouth area. In consequence, it is difficult to give estimates of the additional costs involved in building high flats in the Area. It is generally agreed that the extra foundation costs rise considerably for the higher buildings, adding up to 10 per cent to the cost of the house.

11.12. It can be seen so far that the extra foundation costs for houses in Grangemouth of up to three storeys is negligible. For four to five storeys the extra costs are not very important, and would be even less important if all factors could be taken into account. Above five storeys piling is required, and this adds considerably to costs. For this reason one must advocate the building of low rise housing in the Grangemouth area. Foundation costs are not the only reason for advocating such housing types. Other costs are even more important. Architects have been far too willing in the past to build high, and local authorities happy to accede to their ideas, without taking account of the costs of such buildings. Leaving aside the sociological aspects of living in high flats,<sup>(2)</sup> they are much more expensive than houses. It has been noted above that additional substructure costs would have to be incurred if high flats were to be built in the Grangemouth area, but by far the most important argument against high flats generally is the almost continual rise in superstructure costs with height.

11.13. The figures in Mr. L. Needleman's book "The Economics of Housing" would even argue against three-storey housing. Mr. Needle-

man estimated that the cost of a dwelling in a three-storey block was £324 above that for a two-storey house. A dwelling in an eight-storey block was £1,079 above the cost of a two-storey house. The figure would be £1,170 in the case of a twelve-storey block. These figures take no account of land costs, but "this would have to be very expensive—over £3,000 per acre—before there is any saving in building even three-storey flats instead of two-storey houses".<sup>(3)</sup> Even when land is £50,000 per acre, it is still cheaper to build flats at three storeys rather than at twelve.

11.14. It need hardly be mentioned that these figures reflect the fact that building high does not save land to the extent that is commonly believed. "Building three-storey flats instead of terraced houses saves only an additional four per cent of land, and building twenty-storey instead of three-storey flats saves only a further four per cent".<sup>(4)</sup>

11.15. In view of the fact that it is cheaper per dwelling to build low rise houses, that foundation costs are negligible at this level, that such housing does not take up much more space than high flats, we would advocate, from the cost viewpoint, that low rise housing should form the main housing type in the Area and particularly where poor soil conditions exist. It would, furthermore, seem to be the type of dwelling in which people would prefer to live.<sup>(5)</sup>

11.16. One of the main problems with low rise housing is that it can all too easily become part of a vast, untidy and ugly sprawling estate. Careful design and good planning could easily avoid such a development. It is not wholly cynical to make the point that the Area is perhaps fortunate in that the poor soil conditions may make people carefully consider the wisdom of high flats.

<sup>(1)</sup> Perhaps it might be added that the figures will be further reduced, and this is true of any type of house, when account is taken of the fact, firstly, that road costs are higher on a contour site and, secondly, that houses on contour sites often need expensive retaining walls. Unfortunately, no figures are available in sufficient detail for account to be taken of these factors in the calculations.

<sup>(2)</sup> Little research has been done on this. Miss P. Jephcott of the Department of Social and Economic Research, University of Glasgow, has recently commenced work on the subject.

<sup>(3)</sup> L. Needleman, *The Economics of Housing*, 1963, p. 91.

<sup>(4)</sup> *Ibid.*, p. 91.

<sup>(5)</sup> An article in *The Times*, July 22nd, 1966, "The Swing From the Council Flat", mentions the case of Birmingham where "only about one council tenant in ten elected to live in a flat".

### Foundation costs and industry

11.17. Inevitably, the need for heavy foundations with industrial building will depend on the weight and structure of the building. Heavy structures will need supports, but the evidence gathered during this enquiry would seem to suggest that the normal factory would not need heavy foundations, or at least that the additional foundation costs which do have to be met will be offset by the saving on underbuilding or site levelling needed in other locations. "Despite considerably increased foundation costs at Grangemouth, additional underbuilding in the Denny area gives rise to compensating costs so that there is little difference in the final total".<sup>(1)</sup>

11.18. There are, of course, cases where heavy foundations are necessary—the petrochemical industry is a case in point. It must be remembered, however, that such plants always require heavy foundations in any location, particularly since they are usually located on river estuaries.

11.19. Factory structures and weights are so diverse that it has not been possible to do an exercise similar to that done for housing and provide neat Tables of the additional foundation costs required in the Grangemouth area. The general opinion of architects and civil engineers is, however, that the soil conditions are likely to demand foundations which could add between eight and eight per cent to the cost of the factory above what is normal for an equivalent site elsewhere.

11.20. In judging the importance of the extra foundation costs for industry, one must examine the impact that these costs make on the firm's total production costs. Foundation costs only form a part of total building costs and these, in turn, are only a part of total production costs. Building costs are usually depreciated over 60 years and, in this way, form a part of total production costs. On average, this depreciation represents about 1.4 per cent of the value of total sales.<sup>(2)</sup> Using this figure, if foundation costs are on average 10 per cent of total building costs (a rather high figure—see footnote to paragraph 11.17) and the costs of foundations in Grangemouth were 50 per cent above the average (very pessimistic indeed—see above), then this would still only add 0.15 per cent to total production costs—assuming these to equal sales.

11.21. It can be seen, then, that even on the most pessimistic assumptions foundation costs would be of little importance in an industrialist's location decision, or at least that other location advantages would easily offset them. Such a view is, of course, borne out by the industrial development which has taken place in the Grangemouth area.

11.22. Though the importance of foundation costs may not be important in relation to total production costs, they may increase the initial capital cost of building a factory in the Area. This is particularly important for a new firm which may well be trying to cut down on initial "moving in" expenses. At the same time, the fact that some additional cost may be incurred is important. Business men are not always rational in their location decisions, and many of the variables involved in a location

decision are not measurable. Foundation costs are a measurable location variable and, in consequence, may be weighted more heavily in the final location decision than they would be if the business man was fully conscious of all the location factors. It might be worth while, in view of these points, if consideration were given to the idea of compensation by the Government for any extra costs involved in building factories in the Area. This would not prove expensive, but would ensure that foundation costs did not stand in the way of industrial development.

### Conclusions

11.23. The conclusions of this Section are quite clear-cut. It has been shown that the poor ground conditions which exist in parts of the Area<sup>(3)</sup> do not give rise to any important additional costs. Such a conclusion is in accord with the opinions of many planners that conditions are never ideally suited for building. Land requiring only slight foundations will normally need levelling or the constructed buildings need underbuilding: land with poor ground conditions is frequently flat. Both types of conditions add to the cost of building. Flat land of good bearing capacity is rarely found in areas of any reasonable size.

11.24. It has been shown that for low rise housing, foundation costs are not an important consideration. They are more important for higher buildings, though the rapidly rising superstructure costs argue against such buildings more than the higher substructure costs. For industry, the additional foundation costs do not usually have any great impact on production costs. However, because of the possibility that these costs, being one of the very few quantifiable location variables, may be overweighted by industrialists, and because they give rise to higher initial capital costs we suggest that consideration should be given to the idea of compensating for these extra costs.

## II

### The Reclamation of Land from the Firth of Forth

11.25. Schemes for reclaiming the Forth foreshore have excited interest for many years.<sup>(4)</sup>

<sup>(1)</sup> Part of a letter from a quantity surveyor concerning the costs of building two identical factories of 10,000 sq.ft., one at Grangemouth and the other at Denny. The foundation costs at Grangemouth were about 4 per cent of total factory building costs and about 1.2 per cent for the Denny factory.

<sup>(2)</sup> The census of production (1958) gives figures for total sales of manufacturing industries and the costs of new building. Some of this new building is replacing old and is taken as an indication of depreciation. It does, of course, overstate the importance of building depreciation in total sales but such a point merely strengthens the argument above.

<sup>(3)</sup> It should again be stressed that only a part of the Area suffers from poor ground conditions—mainly the flat lands on the banks of the Forth. The rest of the Area has fairly average ground conditions.

<sup>(4)</sup> For a most interesting discussion of some of the earlier reclamation schemes as well as those suggested by Cadell himself, see H. M. Cadell, *The Story of the Forth*, published in 1913 by James Macdonald & Sons, Glasgow.

The purpose of this short paper is to attempt an economic evaluation of such a scheme.<sup>(1)</sup> To make an economic evaluation of a project involves calculating its costs and possible benefits. If the total costs exceed the total benefits, then the scheme is not justifiable on economic grounds. In the case of this particular scheme, the costs are those incurred per acre of land reclaimed. A measure of the benefits of the scheme would be the cost per acre of purchasing land to be used for the same purposes as the reclaimed land.

### *Uses and value of the reclaimed land*

11.26. The uses to which the reclaimed land could be put are fairly limited. Its low load bearing capacity, and the great depth of load bearing material, would demand very heavy and deep foundations for most buildings. It could be used as agricultural land or as a storage area. If it were used solely for such activities, its value would, of course, be lower than if it were multi-purpose land. Even if it were sold at the prices currently being paid for very good agricultural land in Scotland, it is doubtful whether it would sell at more than £200 per acre. The prices currently being paid for land generally in the Area vary between £100 and £2,500. The limited purposes to which the reclaimed land could be put would probably mean that the maximum price for which it could be sold would be in the lower end of this price range.

### *The cost of reclamation*

11.27. Table 11.1 at the end of this paper shows the costs and character of five possible reclamation schemes which would yield between 250 and 1,850 acres of land.<sup>(2)</sup> The question is, of course, how far are these estimates correct?

11.28. A first point is that the figures are out of date. When the project was again discussed with the engineers in mid-1963, they estimated that costs had probably risen by 50 per cent in the intervening period. If this is the case, then the cost of the various schemes would lie between £4,000 per acre and £6,000 per acre—costs well in excess of prices currently being paid for land in the Area. Secondly, the calculations took no account of funds tied up during the construction period. This is necessary if a real economic cost is to be given to the scheme. The work would need to be done quickly in order that the capital laid down could be brought into productive use at the earliest opportunity. No estimates have been made of the time needed to complete the schemes. Even if they only took five years to complete, and the capital laid down was given a rate of discount of eight per cent, then the real cost would be about 50 per cent above the estimates given by the engineers. A ten-year completion period would almost double the costs per acre. Lastly, the estimates do not include the cost of putting top soil on the area, necessary if it was to be used for agricultural purposes; nor do they include the cost of maintaining the retaining walls. All these points would tend to push the costs above those contained in Table 11.1.

11.29. There are two further problems which should be mentioned. Firstly, the calculations were made on the assumption that the foreshore of this part of the Forth was, in fact, strong enough to carry the weight of the new embankment and fillings. "The preliminary investigations which we have made" (concerning load bearing capacity of the foreshore) "would seem to indicate that on the surface there is a shallow layer of very soft mud, beneath which there seems to be a crust of gravel. When this was penetrated, our hand-boring tools passed very easily down through a soft silt below the gravel. This silt would not be capable of sustaining the weight of the new embankment and slipping would, we think, take place if the crust is not thick enough and strong enough to carry the weight of the new bank. A soil survey with borings would be necessary to settle this question".<sup>(3)</sup> A pessimistic soil survey would, of course, throw doubts on the technical feasibility of the schemes and, in any case, certainly increase the costs of reclamation considerably. A second problem to be kept in mind is that the National Coal Board are considering mining under the area covered by the reclamation schemes. It has been suggested that parts of the land might subside by as much as 20 feet if this were done. Arrangements could, of course, be made to limit this subsidence or halt it altogether, but this would add further to the real costs of the scheme, which are already extremely high.

11.30. In brief, the economics of the schemes argue against the reclamation of the area. The cost of the retaining walls alone give a very high cost per acre reclaimed. If the cost of the wall has increased 50 per cent since the engineers' report, and assuming that capital was discounted at eight per cent for five years, then the wall alone would give a cost per acre of reclaimed land varying between £1,200 per acre for Scheme 1 and £2,200 for Scheme 3.<sup>(4)</sup>

11.31. This Section has attempted to show that the reclamation schemes are not economically feasible at present. There is, anyway,

<sup>(1)</sup> Most of the data used in this paper has been taken from *Report on Reclamation of Land from the Firth of Forth between Be'near and Grangemouth*. This is a highly competent paper submitted to the West Lothian County Council in 1958 by Blyth & Blyth, Chartered Civil Engineers, of Edinburgh.

<sup>(2)</sup> These are taken from *Report on Reclamation of Land from the Firth of Forth between Be'near and Grangemouth*. Because the engineers recognised that the undertaking was very large, they divided the total area into sections which could be completed independent of each other. The author has considered these as four separate reclamation schemes, or five if it were considered possible to reclaim the whole area at the same time.

<sup>(3)</sup> *Report on Reclamation of Land from the Firth of Forth between Be'near and Grangemouth*, op. cit., p.3.

<sup>(4)</sup> Thus, even if the area was used as a tipping ground for waste, and thus the infill material was assumed to cost nothing, the cost of the reclaimed land would still be well in excess of its agricultural value. If the area was used purely as a dumping area for waste, then the time needed to complete the schemes would be much longer. With the capital cost of the wall discounted at 8 per cent per annum, it would push the cost per reclaimed acre well above what has been estimated above. Used as a tip for waste, the Area could easily gain the distinction of having the most expensive waste tip in the world!

sufficient industrial land in the Area to satisfy the possible demands for land without resorting to reclamation. Perhaps some time in the future, if land prices rose considerably and/or some cheaper (and realistic) construction schemes

were available, it might bring the cost of reclamation below the value of the land. It would then be economically feasible. At the present time, there is a long way to go before such a situation is reached.

## COST OF RECLAMATION

TABLE 11.1

Scheme No.*	Area Reclaimed (acres)	Volume of Filling (cu. yds.)	Cost of Wall	Cost of Filling	Total Cost	Cost per acre
1 . . .	250	2,750,000	£150,000	£343,750	£493,750	£1,975
1 . . .	790	18,600,000	£835,000	£2,250,000	£3,085,000	£3,892
2a . . .	1,940	20,750,000	£825,000	£2,563,750	£3,418,750	£1,761
3 . . .	810	18,550,000	£900,000	£2,280,250	£3,180,250	£3,927
TOTAL . .	1,850	59,650,000	£1,725,000	£4,873,000	£6,600,000	£3,567

\* For details of these schemes, see Appendix.

## APPENDIX

### Scheme No. 1

This is the area enclosed by an old causeway constructed by the Forth Conservancy Board. It is apparently in need of repair and, indeed, would need to be completely rebuilt and raised so that the top of the wall is 15 ft. above Ordnance datum. The cheapest wall would be a rock fill embankment of outer slope 1 in 2, protected with 12-inch thick stone pitching and surmounted by a precast reinforced concrete wave deflector. The rock fill would need to be backed up by the tipping of colliery waste to give a top width of embankment of 15 ft. and a landward slope of 1 in 1½.

### Scheme No. 2

This would need a new wall running from the west pier at Be'ness westwards for 3,500 yards a little above low water mark. The River Avon would need

to be diverted north. The sea wall would be similar but higher than that in Scheme 1.

### Scheme No. 2a

This is a scheme which would be undertaken if it was considered that sufficient funds were available to reclaim the whole of the area involved in Schemes 1 and 2 at the same time. It would, of course, save money in as far as there would be no need to build the retaining wall in Scheme 2.

### Scheme No. 3

This would enclose the area between Grangemouth Docks and the diverted channel of the Avon mentioned above. The wall mentioned in Scheme 2 would be extended to Grangemouth Docks. The Grange Burn, which crosses this area, would need to be canalized from high water to the new sea wall.



*The Stirlingshire, West Lothian and Falkirk Growth Area Joint  
Planning Advisory Committee and Scottish Development Department*

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# The Grangemouth / Falkirk Regional Survey and Plan

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VOLUME 1

Economic and Social Issues



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EDINBURGH · HER MAJESTY'S STATIONERY OFFICE · 1968

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# The Grangemouth/ Falkirk Regional Survey and Plan

## VOLUME 1

*prepared for*

STIRLINGSHIRE, WEST LoTHIAN  
and FALKIRK GROWTH AREA  
JOINT PLANNING  
ADVISORY COMMITTEE

*consisting of*

representatives from the County Councils  
of Stirling and West Lothian and the  
Town Councils of Falkirk, Grangemouth,  
Denny, and Bo'ness

*and*

SCOTTISH DEVELOPMENT  
DEPARTMENT

*by*

THE UNIVERSITY OF GLASGOW

*Editor:* D. J. ROBERTSON

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## Preface

This Volume has been prepared in the University of Glasgow in response to a request made by the Stirlingshire, West Lothian and Falkirk Growth Area Joint Planning Advisory Committee in association with the Scottish Development Department. The terms of reference are reproduced in Chapter 1. The idea that the study should be undertaken was first mooted in the White Paper, "Central Scotland: A Programme for Development and Growth", Cmd. 2188, November 1963. I was subsequently invited to be the consultant with particular responsibility for the social and economic aspects of the study, and the University of Glasgow was invited to carry through this part of the study. We have worked in close collaboration with the other consultants, Professor P. Johnson-Marshall and Professor Sir Robert Matthew of the University of Edinburgh, and their colleagues in the University of Edinburgh who have been studying the physical aspects of the Area. Their Report follows our contribution.

This effort by a joint group from the Universities of Glasgow and Edinburgh follows a similar study which has resulted in the publication of the Lothians Regional Survey and Plan.<sup>(1)</sup> We are once more happy to acknowledge our close and friendly relations with the University of Edinburgh in this work. Our association has given us much pleasure and our exchange of ideas has been of the greatest profit. We would also like to acknowledge the friendly co-operation we have received from many officials in the local authorities and the Scottish Development Department. Our work in Glasgow has benefited greatly from the services of Mrs. E. M. Patterson who has acted throughout as our secretary for this task.

D. J. R.

*University of Glasgow*  
September, 1966.

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<sup>(1)</sup> H.M.S.O., Edinburgh, 1966. Two volumes, £7.50s.



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**Introduction  
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